

# The Canadian Medical Association Journal

Vol. XXV

TORONTO, OCTOBER, 1931

No. 4

## HEALTH INSURANCE\*

BY HARRIS MCPHEDRAN, M.B.,

*Toronto*

SINCE the adoption of compulsory health insurance by Germany in 1883 practically all European countries have adopted some form of it, and many other countries of the world, both old and new, have it under consideration. What is state medicine? In Dr. Morgan's address before the American Medical Association meeting at Detroit in June, 1930, the following definition, part of which is appropriate, appeared: "State medicine is hereby defined to be any form of medical treatment provided, conducted, controlled or subsidized by the federal or any state government or municipality, excepting such service as is provided by the Army, Navy or Public Health Service, etc."

It is only in recent times that the state has begun to look on the health of the people as its chief asset and therefore its chief care, and has begun to doubt whether the present system of practice is effectively meeting the needs of the times. In this Dominion and in the United States there is at present a widespread dissatisfaction in the profession and among the laity with the present method of medical practice. Is this the result of the contagion of "state medicine" spreading gradually from Europe, or is it founded on stubborn facts; or is it due to contagion plus facts? If the latter, what are said to be some of the facts causing dissatisfaction in our own country?

*It is said that the laity is dissatisfied because:* (1) the cost of accurate diagnosis and treatment through the use of laboratory procedures, x-ray, hospitals, specialists, consultants and general

practitioners, has become unbearable, especially to the section of the community of small income but independent spirit. These people claim that the rich person and the pauper are adequately served, but the independent poor and middle class are denied these aids or obtain them through great sacrifice; (2) there is not sufficient medical service, including hospitals, doctors, nurses and necessary medical equipment in rural districts, especially the more newly settled ones. This is a handicap country people should no longer be called on to face.

*Many members of the medical profession are dissatisfied because of:* (1) the difficulty of giving many of their patients the best service in diagnosis or treatment on account of the expense entailed in having laboratory and x-ray procedures or hospitalization carried out, or, it may be, in getting desirable help from consultants and specialists; (2) the suspicion on the part of the public that doctors are more concerned with their own than their patients' interests when they advocate preventive measures, e.g., toxoid administration, vaccination and periodic health examinations; (3) the unfair burden, and ever increasing one, of doctors being morally compelled to care for the indigent and needy poor without the slightest compensation, whether treated in hospital or home. To the credit of the profession this work has always been done, but many believe the system to be as unnecessary as it is unfair, for it is, they say, a work which the state should do and for which some compensation should be received. They say: "Our social service nurses, our public health officials, both lay and medical, are paid, then

\* Read before the Academy of Medicine, Toronto, at a special Academy meeting, January 29, 1931.

why is it demanded that the private physician should give of his time, day or night, gratuitously to those who will not, as well as to those who cannot, pay." They contend that this is wrong in principle and worse in practice, and the state should see to it that doctors are to some degree compensated for protecting the community at large from the diseases from which these people suffer.

What has been done in those countries where health insurance has been adopted to meet such or other complaints?

#### GERMANY

First of all let us turn to Germany, which was the first country to institute compulsory sickness insurance, in 1883. The original plans have been greatly elaborated and revised, but the following extracts will give some idea of the present scheme:—

1. The maximum annual income for purposes of insurance is \$900. (3,600 marks).
2. The employer contributes 1/3, the insured person 1/3 and the state 1/3 (Progress report of Royal Commission on State Health Insurance in British Columbia).
3. Contributions are suspended during period of incapacity from illness.
4. Voluntary contributors outside the scope of compulsory insurance are admitted under the scheme where the annual income is less than \$828 (3,300 marks). These represent 3 per cent of the population.
5. Over 60 per cent of the population receive medical benefits and in some of the large centres it is estimated at 90 per cent.

How are the doctors affected? It is reported that only 5 per cent of the physicians in Germany are doing private practice solely. Fifteen per cent are in salaried (government) positions, and 80 per cent (38,000 out of 47,000) of the physicians in Germany receive their income from the Krankenkassen (sickness societies.) The Krankenkassen limit the number of insured persons to 1,000 per physician. There is a definite desire on the part of the insurance companies to reduce the number of physicians in insurance practice and ultimately to establish the medical services on a salaried basis. The insurance companies are interested in providing medical and other benefits at as low a figure as possible and are endeavouring constantly to lower the remuneration of physicians.

Disputes between physicians and the Krankenkassen arise constantly over certification of illness, renewal of prescriptions, etc., and the insurance companies employ *control* or *con-*

*fidential* physicians to check the insurance doctors. Payments to doctors are made on a per visit basis, and so the income of the doctor is increased by multiplying the visits. The average income of an insurance physician is \$1,380 (6,000 marks), although it is estimated that 40 per cent of the insurance doctors do not make more than \$238 (1000 marks) a year.

There has been a marked increase in non-medical practitioners (1/4 of the physicians in some areas) due, it is said, to the poor services rendered by the Krankenkassen. This, it would seem, is a deplorable state of affairs—a warning to the medical profession of Canada of what might happen here if laymen should get control of the profession.

#### GREAT BRITAIN

Now let us turn to Great Britain<sup>1</sup> and briefly review the situation there. The National Insurance Act was passed by Parliament in 1911 and became operative in 1913, after bitter opposition by the medical profession, which had not been consulted. Much of the opposition came from and through the British Medical Association, but it was not at that time considered by Mr. Lloyd George either large or representative enough to speak for the profession as a whole, and therefore its opposition and suggestions were mostly passed over. Under the scheme of National Health Insurance persons (with some exceptions) between the ages of 16 to 70, engaged in manual or non-manual labour, are compulsorily insured if the wages received are £250 (\$1,250) or less per year. The cost of insurance is paid by employer, employee and government, being in the ratio of 4/9ths, 3/9ths and 2/9ths respectively. At present the employer pays 4-1/2d per week, the employee 4-1/2d per week and the government pays 2/9ths of the total costs of the benefits and of their administration. The National Health Insurance appropriation is about £39,000,000, made up of contributions from: employers, £14,000,000; employees, £13,000,000; state, £7,000,000; interest on funds, £5,000,000. The total cost of Social Insurance, including such insurance as old age pensions and unemployment insurance, is about £160,000,000 (\$800,000,000).

Let us look for a moment at the benefits provided.



*Medical benefit, i.e.,* medical treatment and attendance, including the provision of proper and sufficient medicines and the prescribed medical and surgical appliances.

*Sickness benefit, i.e.,* periodical payments during incapacity for work through illness. The ordinary rates of sickness benefit are 15s. (\$3.75) a week for men and 12s. (\$3.00) a week for women, commencing the fourth day of incapacity and continuing for a maximum of 26 weeks.

*Disblement benefit, i.e.,* a continuance of periodical payments during illness at the reduced rate of 7s. 6d. (\$1.87) a week for both men and women after the title to sickness benefit has been exhausted.

*Maternity benefit, i.e.,* payment of the sum of £2 (\$10) on the confinement of an insured woman or the wife of an insured man. A total sum of £4 (\$20) is payable in the case of a married woman who is or has recently been herself an employed contributor; these cases represent 25 per cent of the whole number of payments to married women.

*Additional benefits:* which may be provided by an approved society having a disposable surplus on valuation, and may take the form either of an increase of the normal cash benefits or payment towards the cost of various forms of treatment such as dental, ophthalmic, hospital or convalescent home treatment.

How does this affect the medical profession? Medical practice is carried on under the panel system. Of 24,000 general practitioners in Great Britain about 15,000 are engaged in insurance practice, attending 16,000,000 insured persons, or about 1,000 per doctor. Any qualified doctor may undertake insurance practice. The insured patient has free choice of doctor and may change his doctor at any time if dissatisfied. A doctor may have up to 2,500 persons on his panel; if he has an assistant he may have up to 4,000 persons and if he has a partner he may have up to 5,000 persons. A doctor receives as remuneration 9s. 6d. (\$2.37) per person per year and may also have private patients. He is in no way responsible for drugs or medical appliances, which are provided by chemists or instrument houses as the case may be, on the presentation of the doctor's prescription. If a doctor has 2,500 patients on his panel his daily work is likely to average about 40 visits per day for insured patients only, of which more than three-fourths would be in the office. One writer states that in a large panel practice in London conducted by four doctors, one doctor saw 84 patients in three hours. This same writer goes on to say that between 50 and 60 per cent of the patients seen in several of the hospitals in London were insured persons who came to the hospital for the services of a specialist or just to be examined. No charge of course is made for these services and no provision is made by government or

hospitals for payment of the members of the staff who render this service. Hence we find a condition there, as well as here, as discreditable as it is unnecessary.

Let us consider some of the advantages of the so-called panel system.

(a) *To the profession.*—It is stated that the doctors are paid for their work regularly at a definite rate. This is said to be a great benefit to those who practise in poorer districts where formerly fees were low and uncertain. The income of the profession as a whole has increased. Cooperation among practitioners has increased. There is now a more marked recognition than formerly of the collective responsibility of the profession to the community in respect of all health matters. Mileage is paid in rural districts beyond the 2-mile limit, which is covered by the capitation fee. Panel practices may be sold. The usual sale price is 9s. (\$2.25) to 13s. (\$3.75) per person.

(b) *To the public.*—It is stated that large numbers, or indeed whole classes, of persons are now receiving a real medical attention which they did not formerly receive at all. The number of practitioners in proportion to the population in densely populated areas has increased. The amount and character of the medical attention given is superior to that formerly given in the best of the old clubs, and immensely superior to that given in the great majority of the clubs, which were far from the best. Illness is now coming under skilled observation and treatment at an earlier stage than was formerly the case. Generally speaking, the work of practitioners has been given a bias towards prevention which was formerly not so marked. Clinical records have been or are being provided which may be of great service in relation to medical research and public health.

What are the disadvantages noted?

It is stated that it is mainly those doctors who cannot succeed in private practice that take up panel practice. Some panel doctors seek to get a large clientèle through being "a good fellow", or being lenient with certification of illness in order to retain their patients. The work of a doctor with respect to trifling illnesses has been considerably increased. Not much time nor attention can be given by a doctor with a large panel practice to diagnosis, and hence there is an increase in hasty diagnosis and treatment by med-

icine, i.e., "bottle doctoring." A great deal of a panel doctor's time is taken up in filling in certificates, forms and records concerned with the payment of sickness benefits. The system practically prohibits the panel doctor from allocating time for post-graduate study and holidays, both so essential to good work.

What is the trend in Great Britain, in view of what has been accomplished?

In the supplement to the *British Medical Journal*, April 26, 1930, the Association presents a plan to the public for a general medical service, and states that "the plan has the advantage which a great many schemes from time to time presented to the public conspicuously lack, namely, that it is in accordance with the beliefs and traditions of the medical profession and would have its whole-hearted support." The aim of the plan is, briefly, to give every kind of service which may be necessary for the prevention and cure of disease and for the promotion of full mental and physical efficiency.

The services required are for: (a) the prevention of disease by cooperation of the individual, the family doctor, the schools, the public health authorities, etc.; (b) the treatment of disease through, (1) the family doctor, the foundation of any complete and efficient medical service; (2) the provision of a consultant service and all necessary specialist and auxiliary forms of diagnosis and treatment. This includes consultants and specialists in all departments, laboratory procedures, x-ray, physiotherapy, and such aids as masseurs, opticians, nurses, pharmacists and institutions of various kinds.

This means an extension of existing services in many directions, especially as regards provision of consultants, specialists, auxiliary aids and institutions; but the report goes on: "It is not intended that the service shall be a wholly state-subsidized service. To a considerable extent it must be subsidized, but it should be largely self-supporting."

The people of the country are divided into four groups, according to this scheme:— (1) those who are able and prefer to pay for all their service—medical, institutional and nursing; (2) those who can pay for home service and will get institutional service through some voluntary insurance scheme; (3) those who come under the National Health Insurance Scheme for home treatment and get institutional treat-

ment through a voluntary insurance scheme; (4) those for whom a complete service must be provided.

In regard to hospitals, this statement is made: "In future we may anticipate that the hospitals will be used by all classes— (a) those who are able to pay directly the cost of maintenance and the medical charges; (b) those who are members of some insurance scheme which will pay on their behalf, and (c) those for whom the community must provide. *To none of these sections of the public can the medical staff be expected to give their services as a charity, whether in a voluntary or council hospital. The staffs must be paid in both.*"

#### NORWAY

Norway also has had a sickness insurance act since 1915. Here the doctors all belong to the Norway Medical Association, which is virtually a union and sees to it that the doctors are not imposed upon by the various insurance societies with whom they make contracts and through whom they are paid. Apparently there is free choice of doctor and he is paid a fixed rate for work done, the scale of remuneration varying somewhat in various districts. In one district in 1913 for the first consultation the fee was one kroner (\$0.27), for subsequent consultations up to ten, 1½ kroners (\$0.41), when the fee became one kroner again. An additional fee of ½ kroner (\$0.13) is charged for consultations out of regular hours, 1 kroner for renewal of prescription, two kroners for certificate of health, 3 to 5 kroners for minor operations, 6 to 60 kroners (\$1.62 to \$16.20) for major operations, exclusive of travelling expenses and dressings, 10 to 40 kroners for confinements, plus travelling expenses. The fees are increased 50 per cent for nights, Sundays and holidays.

According to an article by Torleif Torland<sup>2</sup> it is stated "a man with an extensive contract practice can make a very good living out of it, although from a scientific standpoint it is not very interesting work. In Christiania, which is a city of 250,300 people, with one doctor to approximately 4,000 persons, there are several men who make as high as 40,000 to 50,000 kroners (being \$10,600 to \$13,300), the average being 15,000 to 20,000 kroners (\$4,000 to \$5,300) which gives one a very comfortable income in Norway. This money is always certain

and is paid direct from the different societies at stated intervals."

#### RUSSIA

In Russia all doctors are state servants. It is said they are paid only from \$60.00 to \$120.00 a month and living conditions are deplorable. The state bears the complete cost of medical education; 50 per cent of the medical students are said at present to be women. It is noted in favour of the system that the people in outlying districts are receiving some form of treatment, which formerly they were denied.

#### UNITED STATES

Dr. Wm. G. Morgan<sup>3</sup> in his presidential address before the American Medical Association in 1930 at Detroit said: "Do we want the paternalistic hand of government reaching out and taking hold of medical practice in any such fashion as that started in Germany and followed by so many other countries?" He was emphatically opposed to state medicine. However, realizing what has been done in other countries, and considering the drift of doctors from small towns and sparsely settled districts to the centres of population, a committee on the cost of medical care has been formed and has set out on a five-year period of investigation of the situation. Several interesting reports have already been issued and will no doubt form the basis for action on the part of the various bodies interested as well as the medical profession, which is alive to the claims of the people to the best service possible.

In this connection there appeared recently an article by Dr. M. M. Davis<sup>4</sup> on "Doctors' bills and people's billions." The following table taken therefrom is presented for your information. It not only gives an estimate of

the total cost of illness in the United States, but shows how this cost is distributed. You will note that the doctors are not the main factor in the high cost of illness.

It is well to repeat that the figures and estimates of this paper are tentative and may be changed through studies now under way by the Committee on the Cost of Medical Care. With this proviso, the following summary may be presented:

The annual outlay of people of the United States for the care and prevention of sickness is tentatively estimated as \$2,841,000,000.

Doctors' bills make slightly less than 25 per cent of this total. Hospitals and clinics make 30 per cent and medicines and medical supplies 25 per cent.

The expenditure for prevention of disease is only about one-thirtieth of the total and is far too small as compared with the vast expenditure for cure.

There are large wastes in the present expenditure, as for unnecessary drugs and medicines, for unscientific forms of treatment, and for overhead and duplication of medical facilities.

The public that purchases care in sickness must bear a share of the responsibility for the cost of medical care, because of poorly directed spending.

The total of the sickness bill is only about one-thirtieth of the national income.

The source of complaint about sickness bills is not so much the amount as the manner of distribution.

Sickness bills differ from nearly all other expenditures in the family budget because they occur with uncertainty and they fall unevenly.

There is evidence that approximately half of the total sickness expenditure falls annually on

ANNUAL COST OF MEDICAL CARE

				Percentage
For physicians in private practice			\$625,000,000	22 8/10
For hospitals and clinics				
Maintenance	\$605,000,000	21%		
Annual capital expenses	250,000,000	9%		
For dentists			855,000,000	30
For trained nurses			228,000,000	8
For midwives			146,000,000	5
For non-medical practitioners, "healers" and quacks			6,000,000	2/10
For drugs, medicines and appliances			125,000,000	4
For preventive work			700,000,000	25
			90,000,000	3
Total.....			\$2,841,000,000	100



about one-sixth of the families in any given group.

To solve the financial problem of sickness means in part the reduction of costs but in larger part the re-distribution of burdens.

Systematic arrangements for instalment payments of the larger sickness bills may be of some assistance in helping people to pay them.

Insurance against sickness bills, particularly hospital care, should be developed on an experimental basis and separated as fully as possible from the complex issues of professional services.

Dr. W. S. Rankin,<sup>5</sup> Director of the Hospital and Orphans section of the Duke Endowment, Charlotte, N.C., says this:

The average individual between cradle and the grave spends 1/40th of his time in bed because of incapacitating illness. The average worker loses about seven days per year through incapacitating illness. One-fortieth of the population is constantly ill to the extent of being bed-ridden. For every 1,000 people there are 50 who suffer from prevalent and chronic diseases that completely incapacitate for but a small part of their duration, (*e.g.*, tuberculosis). The people of the United States pay for the treatment of diseases approximately \$100 per family per year. Ten billion dollars a year or one-ninth of our annual income goes in the United States to pay for illness or to repair damages inflicted by it. It is estimated that 50 per cent of patients pay their doctor in full, 20 per cent only in part and 30 per cent not at all.

And he concludes:

"An organized medical service makes possible economies that are not possible in an unorganized service and can be offered for financial returns considerably smaller than the cost would be if the patient obtained the same service from unrelated practitioners and specialists."

#### CANADA

Dr. Harvey Smith,<sup>6</sup> in the presidential address at the British Medical Association in August, 1930, in Winnipeg, says:

"At the outset I am strongly opposed to encroachment by the state on the field of private practice, and this attitude I am sure is supported by a large majority of my confrères. I feel, however, that we must settle problems of service, cost, organization and distribution ourselves. I should be sorry if our inaction exposed us to the criticism that we possessed neither the vision nor the capacity to plan an organization, etc."

Many others, (among them the late Dr. C. J. O. Hastings) hold to the opposite view, and believe that in all fairness to the people of Canada some form of state medicine must be adopted.

Let us pause here to consider what sickness is costing us annually in Canada.

Dr. J. G. FitzGerald,<sup>7</sup> in his evidence before the Standing Committee on Industrial and International Relations, stated that it has been estimated by Dr. J. W. S. McCullough of the Department of Health, Ontario, that: the Dominion of Canada, the Provinces and Municipalities spend \$5,454,529.32 for public health work alone, annually; the total bill for sickness (including expenses for physicians, dispensaries, hospitals, medicines, medical supplies, etc.), in Canada reaches the enormous figure of over \$311,000,000 annually (if to this is added the stupendous loss of future earning power from premature death, we reach a grand total of \$1,311,060,480 annually); in Ontario<sup>8</sup> we spend \$2,000,000 to control disease and \$48,000,000 on education.

In view of the above condition, and keeping in mind the fact that private enterprise has failed to give adequate service to many people in various places, some Provinces have already taken steps towards some form of state medicine.

#### BRITISH COLUMBIA

In this Province a Royal Commission has been investigating health insurance, and has made a preliminary report to the legislature. They have reviewed state medicine in all the countries that have it in some form or other, and a study of their report is recommended to all. The British Columbia Medical Association,<sup>9</sup> alive to the need of presenting to the Commission the views of the practitioners of that Province, made, among others, the following recommendations:

That the Act should be compulsory, with optional clauses and should cover all those persons in the community whose incomes are below a certain limit, and they suggested \$1,500 for married men and \$1,200 for single men.

That the Act should provide for all illnesses and accidents.

That it should include the wives and members of families of those who come under its operation.

That it should be administered by an extra-political board, as is the Workmen's Compensation Act.

That the aim should be to provide every family or individual with a family doctor, and to make ample provision for the payment of specialists and consultants.

That doctors should be paid for services rendered, according to a schedule of fees, as is provided for by the Workmen's Compensation Act.

That those who practise must have received a sound basic education, both general and scientific, and have given proof of adequate knowledge of the structure and functions of the body, both in health and disease, of modern methods of diagnosis and a full knowledge of health and sanitary laws.

The preventive department should be divorced as far as possible from the therapeutic department.

That the general practitioner or family doctor should be used wherever possible as an adjunct to the health service.

That the family physician should in all cases be able to treat his patient in the hospital. This applies to indigents as well as pay patients.

#### SASKATCHEWAN AND ALBERTA

In these provinces<sup>10</sup> certain steps towards state medicine have been made. Largely these have gone in the direction of providing municipal hospitals, municipal physicians and travelling clinics. These latter in Alberta travel about the province in the summer months, examine people and do necessary (not major) operations, such as dental extractions, tonsillectomies, etc., for a small fee. Whatever one may think of such proceedings, it shows that these newer provinces are alive to the need of the people and determined to give them medical help which otherwise might be denied them.

#### ONTARIO

What is the situation in Ontario? At present the practice of medicine is carried on by two bodies: (1) the Public Health Service, dealing with matters pertaining to the welfare of the public generally, as sanitation, inspection of school children, control of infectious diseases, supervision of water and food supply, etc.; (2) the medical practitioners, general, specialist and consultant, dealing with the health of the individual either in private practice, contract practice, or through the Workmen's Compensation Act, in homes or hospitals. Laboratory and x-ray procedures are widely used, and hospital treatment is becoming more desirable and is often necessary. Of this system the general practitioner is the backbone and will so continue in any system of practice that may be involved.

Due to the rapid advance in the science of medicine in the past twenty-five years, both profession and public are finding this system of practice not entirely satisfactory, and from both parties we hear complaints and suggestions for a change. What changes may be considered?

I. *The establishment of a complete state medical service, which in the opinion of some should provide for:*

(a) *Hospitals*, which would be thoroughly equipped, supervised and located at strategic points all over the country; be staffed in all departments by well trained doctors, nurses, etc.; be used for diagnosis and treatment both in

city, town and country and in this way eliminate some of the present waste of time and energy in making city, but especially country, calls; serve as educational and propaganda centres in all matters pertaining to health.

(b) *Research*, which would be carried on by the profession as a whole, as well as by individuals, and provide for thorough investigation of all new methods of diagnosis, new forms of treatment, new drugs, new instruments and appliances before being used by any doctor.

(c) *Preventive as well as curative measures in medicine*, and thus prevention of disease would attain to its proper place and importance in the field of medicine, since people would be encouraged, perhaps compelled, to come for periodic health examinations. They would report to a doctor on the first sign of illness, not delaying to do so through fear of adding to an already over-burdened family budget—a step so frequently leading to tragedy. Reliable information would be broadcast to the public, now relieved of the suspicion that doctors were only out to promote their own interests.

(d) *Doctors*, who would be properly distributed in urban and rural districts alike and be paid salaries commensurate with their experience, ability and attainments, with the assurance of sufficient holidays yearly. Time and opportunity for periodic post-graduate courses would be given, and provision for sickness and old age would be made, and they would be relieved of the burden of caring for the indigent and improvident without any remuneration from any source. Patients would be referred for consultation earlier, because there would be no extra cost, and no fear of losing a good patient. Doctors would be compelled to have special training and sufficient experience before acting as specialists or consultants, or undertaking major surgical operations of any kind. There would be no temptation to split fees or advise unnecessary operations for the sake of pecuniary gain.

All nostrums would automatically disappear from the market as people would not be tempted to resort to them in order to avoid doctors' bills, and druggists would do most of the dispensing. Doctors would thus be relieved of the necessity of doing their own dispensing and using many ready-made gun-shot mixtures of high cost and questionable value. Irregular



practitioners under such a scheme would automatically disappear.

But would there be any difficulties in such a service? One must answer this question in the affirmative. Such a system of practice would necessitate some such organization as existed in the Army Medical Service, with all its disadvantages. Briefly, what would probably be some of the difficulties?

(1) A degree of discipline of public and profession alike, which, though it might be of benefit, would be irritating and perhaps impossible in a democratic country. (2) The probable growth of a medical or lay bureaucracy, subject to political influence, as in Germany. (3) The sacrifice by the patient who is personally paying his doctor of that independence which is a direct check on carelessness and indifference on the part of the doctor. (4) The inevitable petty graft that follows where there is sickness insurance, *e.g.*, in wrongful certification of illness, such as it is said occurs in England. (5) Wasteful consumption of time on the part of doctors in filling certificates, forms, etc. (6) The attempt, where payment is made to doctors at the rate of so much per visit, or so much per patient per annum, to increase a clientele beyond the number that could be properly examined and treated. This leads to carelessness in diagnosis, too frequent visits, and "bottle doctoring" which latter is at present dying a hard death. (7) The diminution of that personal interest which doctors feel in their private patients who are directly remunerating them. (8) The fear that doctors would become only cogs in a machine controlled by the state, *e.g.*, in Germany and Russia, and the fear that remuneration would not be given consistent with the qualifications, attainments and experience of the doctors concerned.

II. An alternative plan that might be considered at present is it would seem a continuation of the present system of practice supplemented by: (1) provincial aid in certain directions; and (2) certain activities on the part of the profession.

As a help on the part of the state, it is suggested that it should provide an adequately paid medical service at least for the indigent poor, and perhaps for those of moderate means, whether treated in hospital or in their homes, with all auxiliary methods of diagnosis and

treatment, including nursing, etc., both in the city and the country.

As a help on the part of the profession, it is suggested that it undertake: (1) To persuade all its members to keep records, and from time to time (once every five years) take post-graduate courses. These latter could with a little effort be arranged, it is believed, through the cooperation of our teaching universities, the Ontario Medical Council and the Ontario Medical Association. They might be given at our various universities after the university term is finished in the spring, and would supplement, and in time supplant, the present extension lectures carried out under the auspices of the Ontario Medical Association; (2) to consider, through its duly appointed representatives, ways and means of collecting and financing doctors' accounts, keeping in mind the statement previously quoted from Dr. Rankin's report, that only 50 per cent of patients pay their bills in full, 20 per cent in part and 30 per cent not at all.

The time is opportune for a study of this whole question. Several of the districts of the Ontario Medical Association are already making a study of the economic side of medical education and practice, to determine among other things: the capital invested in obtaining a medical education; the gross and net returns from medical practice; the charity work done; the cost of carrying on a practice, etc. Similar information should be obtained from all the districts of the Ontario Medical Association in Ontario, so that if and when the government of the day brings forward some scheme of health insurance we may present to it this valuable information regarding medical practice.

In these matters we must act as a unit. Every practitioner in this province should at this time find himself a member of his local society, the Ontario Medical Association, and the Canadian Medical Association, so that whether plans are being laid by our own executives or legislation is being brought down by our Government, the voice of the whole profession may be clearly heard for our own advancement, protection, and it may be preservation. Let us face boldly any defects in the present system of practice and with the fullest information at hand, let us together, profession and people, work out a scheme that will meet the needs and give the



best medical service, preventive and curative, to everyone from the highest to the lowest. If we approach the subject in the scientific way, some reasonable solution of our present difficulties can be found. In this the heartiest co-operation of the medical profession is assured. While prepared to resist any attempt at unfairness, we will be found ever ready as a body to make reasonable sacrifice of our own interests for the common good of the people of this country.

## REFERENCES

1. Report of the Royal Commission on National Health Insurance, 1926. GILLIES, *Bull. Acad. Med., Toronto*, Sept., 1930; *Brit. M.J. Supplement*, April 26, 1930.
2. TORLAND, *Northwest Medicine*, 1924, 23: 19; and FENWICK, *Bull. Acad. Med., Toronto*, Sept., 1930.
3. MORGAN, *J. Am. M. Ass.*, 1930, 94: 2035.
4. DAVIS, *J. Am. M. Ass.*, 1930, 94: 1014.
5. Quoting "Progress Report of the Province of British Columbia." Royal Commission on State Health Insurance and Maternity Benefits, 1930, p. 21.
6. SMITH, *Canad. M. Ass. J.*, 1930, 23: 333.
7. FITZGERALD, Evidence before Committee on Industrial and International Relations, March 14, 1929.
8. MCCULLOUGH, *Canad. M. Ass. J.*, 1929, 21: 168.
9. *Bull. British Columbia M. Ass.*, 1930, 7: 35.
10. MACKENZIE, *Bull. Acad. Med., Toronto*, Sept., 1930.

The writer wishes also to acknowledge his indebtedness to Willard C. Rappeleye for much information from the excellent volume "Medical Education and Related Problems in Europe."

## A STUDY OF THE ENZYMES OF STOOLS IN INTESTINAL INTOXICATION\*

By F. G. BANTING, S. GAIRNS, J. M. LANG AND J. R. ROSS,

Toronto

THE study of enzymes has shown that their action is controlled by certain definite principles. All enzymes have an individual substrate on which they act; for example, trypsin acts on proteins, amylase on starch, and lipase on fats. There is an optimum hydrogen-ion concentration for each enzyme. Enzymes are usually studied at a temperature of 37.5°C., though their activity is increased at slightly higher temperatures. The concentration of the products of enzyme action, and also the concentration of the substrate, must be within a certain range of dilution, otherwise the enzyme action will be retarded or inhibited. Substances which specifically destroy enzymes must be excluded. Enzyme action is studied by the estimation of the products of enzyme activity.

In previous work we have shown that unheated serum has a marked inhibiting effect on the digestive action of trypsin. It was found that 2 c.c. of raw lamb serum partially inhibited, and 10 c.c. completely inhibited the action of 0.1 g. of trypsin in 400 c.c. of substrate. This fact suggested the possibility that the presence of serum in the lumen of the bowel might inhibit the action of trypsin and thus account for the fermentation, putrefaction and toxic absorption which occurs in intestinal intoxication in infants. It was therefore decided to make an in-

vestigation of the enzyme content of the stools of infants suffering from intestinal intoxication. Before doing this, however, it was necessary to identify the enzymes, and obtain methods that would give some measure of the amount of enzyme present in the faeces. This procedure was carried out on the stools of normal infants.

## TRYPSIN

The first enzyme studied was trypsin. The method used was as follows. The diapers of each case were collected over twenty-four hour periods, and the stools transferred to a glass plate by means of a spatula. If the stools had become dry on the diaper they were moistened with a little distilled water before being transferred. The stools were dried on the glass in front of an electric fan and the dried powder was scraped into envelopes and kept in a desiccator until used.

The method of examination was as follows. Three hundred and fifty c.c. of pH8 buffer and 50 c.c. of lamb serum were placed in a 500 c.c. flask and heated to 90° C. to destroy the anti-trypsin. The flask was cooled and 0.5 g. of dried faeces and 3 c.c. of toluene were added. A sample was taken immediately and a non-protein nitrogen estimation made. The flask was placed in a water bath at 37.5° C., and non-protein nitrogen estimations were made at the end of twenty-four, forty-eight and ninety-six hours. The rate of digestion during the

\* From the Department of Medical Research, University of Toronto and the Hospital for Sick Children.

first twenty-four hours was taken as the best indication of the amount of trypsin present.

The non-protein nitrogen estimations were made as follows. To a 40 c.c. sample of the flask content 10 c.c. of 10 per cent trichloroacetic acid were added. The mixture was shaken, allowed to stand a few minutes, and filtered. Twenty cubic centimetres of the clear filtrate were digested with 20 c.c. of concentrated sulphuric acid and the usual Kjeldahl determination was made.

This procedure was found satisfactory because the large volume in the flask provided a dilute substrate from which frequent samples could be taken without greatly decreasing the volume. The buffer kept the solution at a constant pH. The serum was a suitable substrate and was readily obtained at the abattoir. The toluene prevented and destroyed bacterial action without interference with the enzyme activity of the contents. Bacteriological examinations of the flasks were carried out, from time to time, and plate cultures were negative. As the trypsin of the stool digested the heated serum the non-protein nitrogen of the flask content increased. This increase was used as an indication of the amount of enzyme present in the stool.

In order to compare the trypsin activity of normal stool with that of powdered trypsin, two flasks were prepared. Each contained 350 c.c. pH8 buffer and 50 c.c. lamb serum heated to 85°C. and cooled. To one was added 0.1 g. of powdered trypsin and to the other 0.2 g. of dried faeces of a normal breast-fed baby, four months old. Chart I, Numbers IA and IIA, show that there was almost half as much trypsin in the stool as in the trypsin powder obtained from the Digestive Ferments Company. Two flasks were also prepared, using raw serum instead of heated. It was found that there was no digestion either with the dried stool or the trypsin powder. This is shown in Numbers IB and IIB.

In order to compare the effect of small amounts of raw serum in inhibiting the digestive action of the dried stool as well as that of trypsin powder, two series of flasks were prepared, using varying proportions of raw and heated serum. To one series was added 0.1 g. of trypsin powder and to the other 0.5 g. of dried faeces. The details of this experiment are given in the note under Chart I, Numbers III and IV. It will be seen from the Chart that raw serum had a similar effect on the digestive

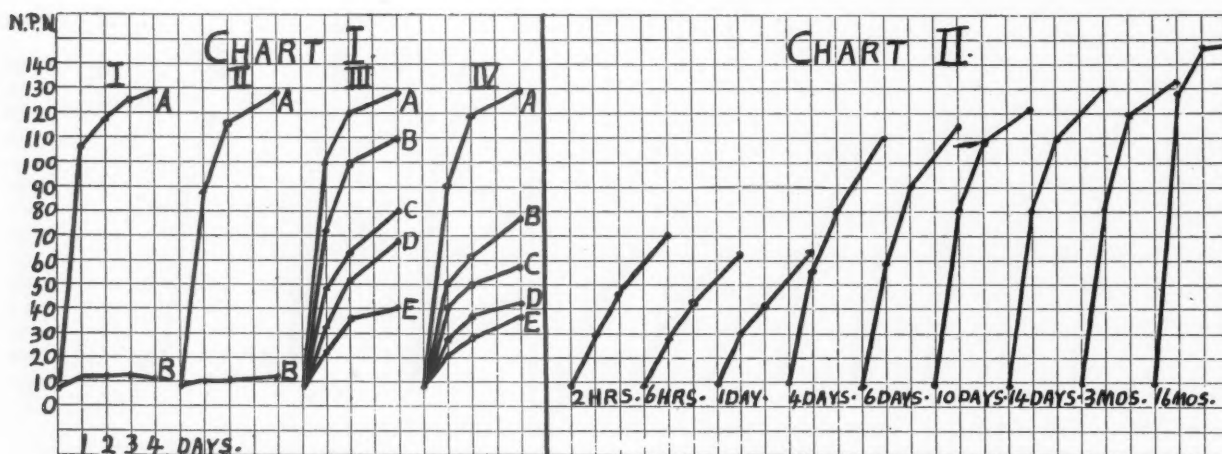


CHART I.—Milligrams non-protein nitrogen in 100 c.c. of fluid in flask.

No. I.—Each flask contains:

350 c.c. pH8 buffer + 50 c.c. serum. "A" heated to 85° C. and cooled before addition of 0.1 g. trypsin "B" unheated; + 0.1 g. trypsin.

No. II.—Same as No. I except that 0.2 g. dried stool of normal breast fed baby 4 months old were used in place of 0.1 g. trypsin.

No. III.—Each flask contains:

A.—(350 c.c. water + 50 c.c. serum) heated	+	0 c.c. raw serum	+	0.1 g. trypsin.
B.—(350 c.c. water + 48 c.c. serum) heated	+	2 c.c. raw serum	+	0.1 g. trypsin.
C.—(350 c.c. water + 46 c.c. serum) heated	+	4 c.c. raw serum	+	0.1 g. trypsin.
D.—(350 c.c. water + 44 c.c. serum) heated	+	6 c.c. raw serum	+	0.1 g. trypsin.
E.—(350 c.c. water + 42 c.c. serum) heated	+	8 c.c. raw serum	+	0.1 g. trypsin.

No. IV.—Each flask contains:

A.—(350 c.c. water + 50 c.c. serum) heated	+	0 c.c. raw serum	+	0.5 g. faeces.
B.—(350 c.c. water + 40 c.c. serum) heated	+	10 c.c. raw serum	+	0.5 g. faeces.
C.—(350 c.c. water + 30 c.c. serum) heated	+	20 c.c. raw serum	+	0.5 g. faeces.
D.—(350 c.c. water + 20 c.c. serum) heated	+	30 c.c. raw serum	+	0.5 g. faeces.
E.—(350 c.c. water + 10 c.c. serum) heated	+	40 c.c. raw serum	+	0.5 g. faeces.

activity of both dried faeces and trypsin powder. It will also be noted that 2 c.c. of raw serum in the 400 c.c. of substrate had an appreciable effect (Number IIIB) and that 8 c.c. markedly lowered the curve of digestion in the trypsin series (Number IIIE). It will be seen that the series containing the dried faeces required more raw serum to inhibit the activity (Number IV). This is due to the larger quantity of faeces used.

Having shown that the trypsin content of dried, powdered stool could be estimated, the next step was to find the trypsin content of stools of normal infants of varying ages. These were supplied to us from the Burnside wards of the Toronto General Hospital.

content appeared to be lowered in proportion to the severity of the case. It was thus possible to group uncomplicated cases into 'mild', 'moderate' or 'severe' by means of the trypsin curve. Mild cases which recovered showed a curve only slightly below the normal. Patients who died had a very low trypsin curve. In moderate cases the curves varied between these limits. Chart III illustrates a "mild" case which recovered, two "moderate" cases, and two "severe" cases. One of the moderate cases recovered (A) and a week later the trypsin curve was much higher (B); the other moderate case (C) died.

Chart IV shows the increase of trypsin in the

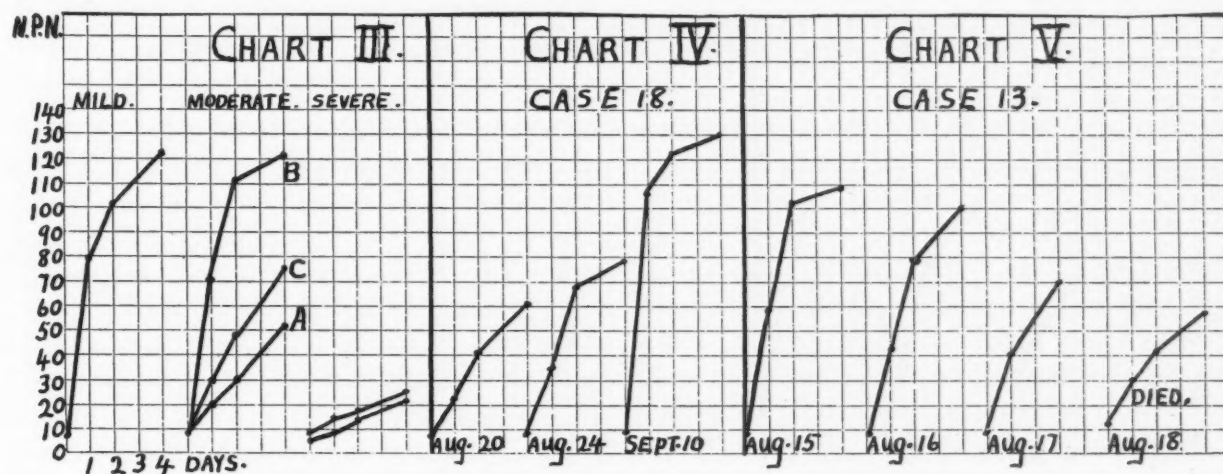


CHART IV.—Case 18. Admitted August 19, 1929. Age, 6 months; weight, 16 lbs. Previous diet, Eagle Brand milk. Complaint—vomiting, diarrhoea, restlessness for 5 days; 7 stools per day.

CHART V.—Case 13. Admitted August 15, 1929. Age, 7 months. Complaint—diarrhoea and vomiting. Course, progressively worse. Died August 18, 1929.

It was found that the stools of very young infants contained small amounts of trypsin, and in order to obtain a sufficient amount to give a representative curve of digestion, it was necessary to use 0.5 g. of dried stools. With older infants (6 to 10 months) 0.2 g. of dried stool contained sufficient trypsin to give a high digestion curve. However, it was decided to use 0.5 g. of stool in all of these experiments, so that the curves could be compared.

Trypsin was found to be present in small amounts in the stools of new born babies, even before food entered the stomach. Chart II shows that it rapidly increased in amount for the first two weeks, after which time the increase was more gradual.

A study was then made of the stools of over one hundred cases of intestinal intoxication in the Hospital for Sick Children. The trypsin

stool of a fairly severe case of intestinal intoxication during recovery. On August 20, 1929, the trypsin curve was low. It showed a very slight increase by August 24th, but 17 days later, when the child was sufficiently improved to be discharged from hospital, the trypsin curve had returned to normal.

Some patients, in spite of hospital treatment, became progressively worse and died. This type is illustrated by Chart V, which shows a daily decrease in trypsin until death.

Chart VI represents the trypsin content of the stool of a very young infant (six days) suffering from severe intestinal intoxication. The lowness of the curve is due not only to the severity of the disease, but also to the age of the child.

Cases were sometimes observed in which the trypsin curve was high and at the same time



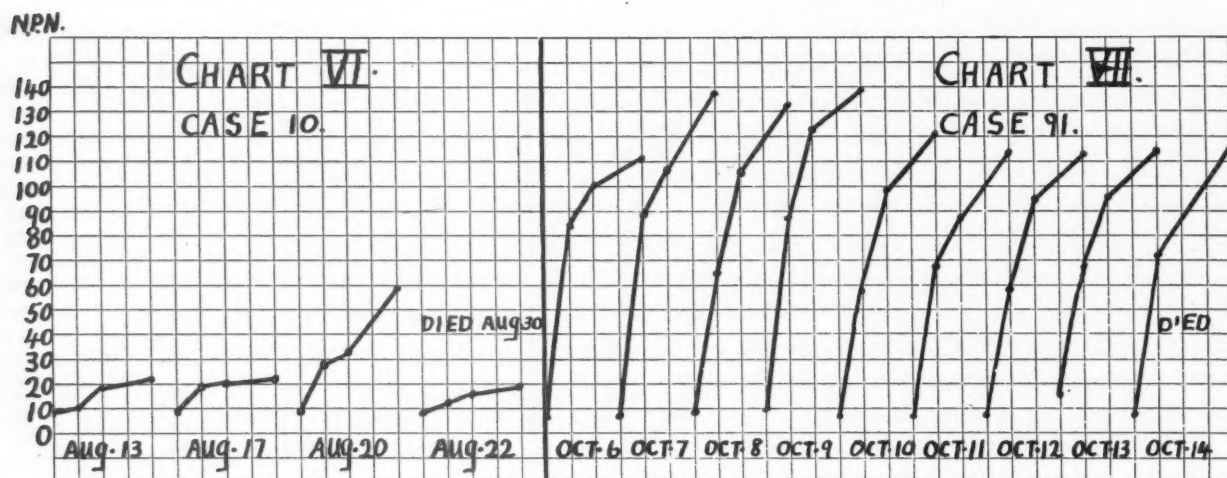


CHART VI.—Case 10. Admitted August 11, 1929. Age, 6 days. Previous diet, breast-milk and protein-milk. Complaint—vomiting, diarrhoea (8 stools per day), loss of weight. Died August 30, 1929.

CHART VII.—Case 91. Admitted October 1, 1929. Age, 11 weeks. Complaint—intestinal intoxication. Final diagnosis—otitis media, nasopharyngitis, mastoid, meningitis, pneumonia, septicæmia. Died October 14, 1929.

the child was critically ill. Some of the patients had a high trypsin curve even until they died. It was found in such cases that the disease was complicated by one or more of the following infections—otitis media, mastoiditis, meningitis, nasopharyngitis, pneumonia or septicæmia. Chart VII illustrates this type of case. The trypsin curves were fairly high on successive days from October 6th until death on October 14th. At autopsy it was found that the child had bronchopneumonia, bilateral otitis media, mastoiditis, acute general peritonitis and abscess of the abdominal wall. Chart VIII shows the digestion curves of another child who

was admitted to hospital (September 22, 1929) suffering from diarrhoea, vomiting, and with complications of nasopharyngitis and double otitis media. The trypsin curves were high, despite the fact that the child became progressively worse and died.

The stools of a few infants suffering from pneumonia, meningitis and other diseases were examined. None of these showed a low trypsin content of the stool at any stage of the disease, and remained normal until death. This would indicate that a low trypsin curve is not a terminal symptom preceding death, but is pathognomonic of intestinal intoxication. Chart IX

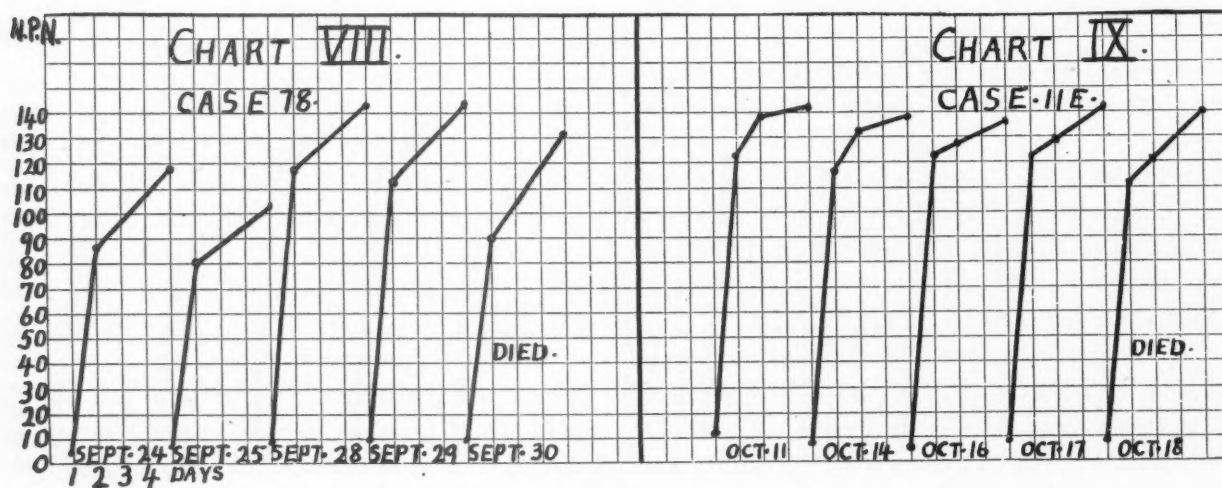


CHART. VIII.—Case 78. Admitted September 22, 1929. Age, 14 months. Complaint—diarrhoea, 1 week; sore ear, 1 week; loss of appetite, 1 week; drowsiness, 2 days. Previous diet—breast-fed 0 to 1 month; milk and water dilution, 1 month to present. Final diagnosis—acute intestinal intoxication, double otitis media, nasopharyngitis.

CHART IX.—Case 11-E. Admitted October 4, 1929. Age, 6 months. Complaint—loss of appetite, fever, drowsiness, jaundice. Final diagnosis—pneumonia, empyema. Died October 18, 1929

represents the trypsin findings in a case of pneumonia with empyema. It will be noted that the trypsin curves were normal until October 18, 1929, which was the last stool passed before death.

The case studied in which malnutrition occurred following diarrhoea and improper feeding showed a variation in the trypsin content of the stools. For the most part the trypsin was normal, but occasionally there was a decrease for a day or two. The stools were large in volume, pale in colour, and amyloid or fatty in appearance. The weight of the dried stool was above all normal proportions, being four or five times as much as the stool of a normal child of the same weight. When this increased volume was accompanied by high trypsin content, it appeared that the total amount of trypsin produced in these cases was greater than normal. At the same time, the child failed to increase in body weight.

#### AMYLASE

Having obtained conclusive evidence that the trypsin content of the stool was low in babies suffering from acute intestinal intoxication, it was decided to study other enzymes. With the assistance of Miss Jessie Lang, an estimation of amylase was carried out on the same samples of stools which had been used for the trypsin determinations. The method for estimating the amylase in the stools was as follows: To 25 c.c. of a 1 per cent buffered starch solution adjusted to pH7, there were added 0.2 g. of dried faeces and a few drops of toluene. A sample of 1 c.c. was taken immediately, and the amount of sugar present was estimated by the Shaffer-Hartman method. The tube was incubated in a water bath at 37.5°C. and samples were taken at two-hour intervals for six hours, and a final sample taken at the end of twenty-four hours. The amylase content of the stools was expressed in per-

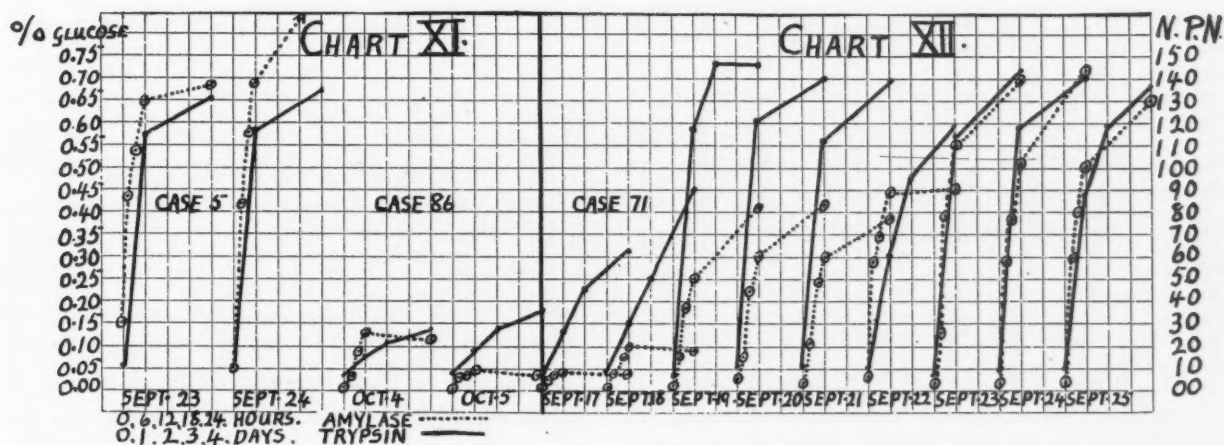
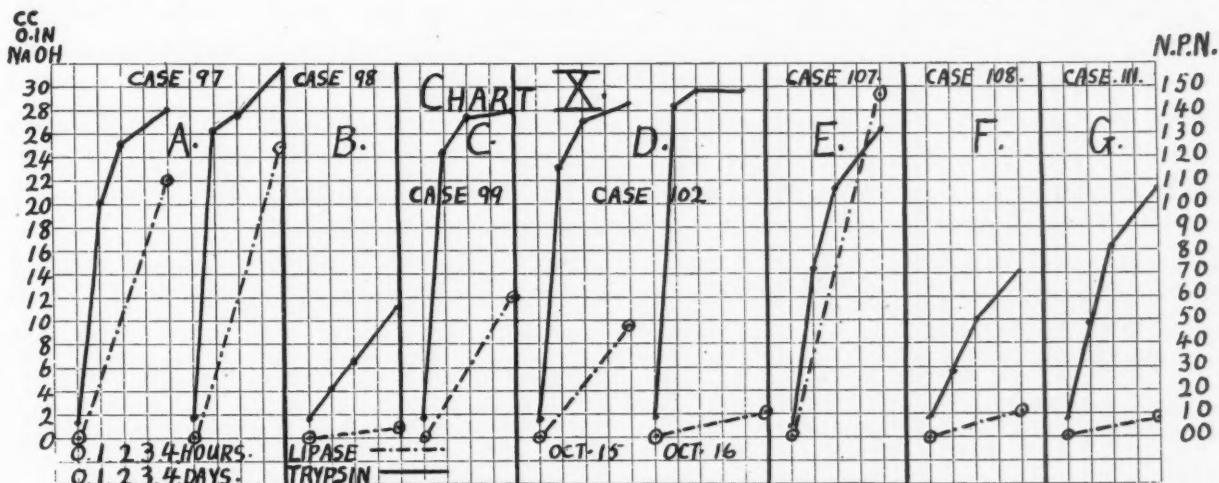


CHART XI.—Case 86. Admitted September 14th. Age, 3 weeks. Weight, 4 lbs. 1½ oz. Complaint—prematurity, acute intestinal intoxication. Stools 6 to 7 per day. Weight October 5th, 3 lbs. 11½ oz. Died October 6th.

centage of glucose produced by the digestion of the starch solution.

Chart XI, Case 5, represents the amylase curve of the stools of a normal breast fed infant, four months old. The trypsin curves are also given. Case 86 shows the very low amylase curve of an infant suffering from intestinal intoxication and having a low trypsin curve.

Chart XII, Case 71, gives both the trypsin and amylase curves of a child which recovered from intestinal intoxication. The trypsin and amylase curves were both low on September 17th and 18th; the trypsin curve became normal on the 19th, but the amylase curve increased more slowly and did not reach a normal level until September 23rd.

The study of amylase was not so thoroughly carried out as the study of trypsin, but in general it was found that the amylase content was low when the trypsin value was low, and high when the trypsin value was high. It was sometimes observed (Chart XII, September 19th, 20th and 21st) that an individual sample of stool might give a comparatively low amylase curve and a normal trypsin curve. Hence it was important to follow the daily samples of stools to avoid errors in the interpretation of the amylase curve.

Experiments were also carried out to ascertain the effect of raw serum on the action of amylase. To do this 2 per cent starch solution was used, and half of the 25 c.c. originally used was replaced by serum. One tube contained 12.5 c.c. of 2 per cent buffered starch solution and 12.5 c.c. of raw serum. The second tube contained a mixture of 12.5 c.c. of starch solution and 12.5 c.c. of serum, which was heated to 90° and cooled. To both tubes 0.2 g. of normal stool were added and the tubes incubated. Samples were taken as before and the percentage of glucose was estimated. It was found by this procedure that raw serum did not inhibit the action of amylase in the stool.

#### LIPASE

The lipase content of the faeces was not studied in the intestinal intoxication cases of 1929, but in the early fall of 1930, the trypsin and lipase of twenty cases were followed.

The method of estimation of lipase in the

stools was a modification of that given by Cole. Three 0.15 g. samples of stool were weighed out and placed in three 10 c.c. test tubes, labelled A, B and C. Two cubic centimetres of distilled water were added to each. Tube "B" was placed in boiling water for 20 minutes and cooled. To "A" and "B" 1 c.c. distilled water was added, and to "C" 1 c.c. of a 1 per cent solution of bile salts. To each tube 5 c.c. of an emulsion of olive oil were added. The tubes were shaken thoroughly and placed in a water bath at 40° C. for 4 hours. The tubes were shaken frequently during this period. At the end of incubation the contents of the tubes were transferred to three labelled flasks. The tubes were rinsed out twice with 10 c.c. of 95 per cent alcohol and the washings were added to the flasks. After the addition of 5 drops of 1 per cent phenolphthalein the flasks were titrated to a definite pink with 0.1 N. NaOH. The results were expressed in c.c. of 0.1 N. NaOH used. The stools contained sufficient bile salts for the lipase activity, hence the added bile salts did not materially aid the digestion of the oil. The results reported, therefore, do not include the figures obtained by the addition of the bile salts.

The trypsin and lipase curves of a normal infant are shown in Chart X, A.

As in the case of amylase, the amount of lipase found in the stools did not always correspond with the trypsin. The lipase content was always low when the trypsin was low (Chart X, B., F. and G.) but when the trypsin was high it was found that the lipase was sometimes high and sometimes low. (Chart X, D).

Some of the patients studied had recovered from intestinal intoxication before the stools were collected. Chart X, C, shows high trypsin and medium lipase in the stools of a child ten days after recovering from intestinal intoxication. As mentioned previously, the stools of infants suffering from malnutrition were very fatty. Chart X, E. shows the high lipase value in such a case. It will be noted that the trypsin curve is sub-normal, due, no doubt, to the presence of fat in the stool. Experiments were carried out to find if raw serum inhibited the action of the lipase in the stool. This was done by adding raw and heated serum to the stool before the addition of the olive oil. The results showed that 1 c.c. of raw serum in 8 c.c. of



substrate did not inhibit the lipase activity of 0.15 g. of stool.

#### DISCUSSION

It was found that after digestion was established in a normal infant the stools contained large amounts of trypsin, amylase and lipase. The trypsin content of the stools of infants suffering from intestinal intoxication was decreased in proportion to the severity of the case. In very young infants the curves were lower than in older children. When the case of intestinal intoxication was complicated by bronchopneumonia, mastoid or other focal infections, the clinical condition became worse, usually without a corresponding decrease of trypsin. The low trypsin content was not a terminal condition, since the stools of children dying of other diseases had a normal trypsin content until death.

The lipase and amylase content of the stools did not correspond exactly to the trypsin con-

tent. In general, a low trypsin was always accompanied by a low amylase and lipase content, but with a high trypsin the amylase and lipase might be either high or low. Of the three enzymes studied, trypsin seemed to give the best indication as to the severity of the disease. The original hypothesis was that the serum in the lumen of the bowel inhibited the action of trypsin, thus causing intestinal intoxication. However, it has been shown that in this disease there is also a decrease in the amylase and lipase of the stool, and since the action of these enzymes is not inhibited by raw serum, the original theory is untenable. The inference is that in intestinal intoxication the pancreas fails to produce its normal quantity of enzymes. At the present time it is impossible to state whether this is a cause or an effect of the disease.

We wish to express our thanks to Drs. Alan Brown, F. F. Tisdall and T. G. H. Drake, of the Medical Staff of the Hospital for Sick Children, for their cooperation and assistance in this investigation.

### THE EFFECT OF PERITONEAL ADHESIONS UPON THE URINARY TRACT\*

BY FRANK S. PATCH AND MERLE D. EVANS,

*Montreal*

OBSTRUCTIONS of any part of the urinary tract by lesions outside the urinary tract constitute an interesting chapter in urology. Examples of this are commonly to be found in connection with the genital organs of the female, as displacements and tumours of the uterus, inflammatory deposits in the parametrium affecting the bladder, and, in both sexes, malignant metastatic growths in the pelvis, profoundly affecting the ureters and kidneys. Urological text-books only occasionally deal with this type of lesion. We have not observed any reference to the effect of peritoneal adhesions in producing ureteral obstruction. It appears to us, however, that the condition is much commoner than this would indicate, and that the possibility of its occurrence should be borne in mind by urologists in cases of hydronephrosis in which no other

etiological factor can be found. Three cases of this sort have been observed in the urological service of the Montreal General Hospital, and are here reported in detail. The three cases differ very markedly in various respects. The first was an accidental autopsy finding which furnished definite proof that the lesion produced almost complete destruction of the kidney above the obstruction. The other cases were clinical observations, with markedly contrasted therapy, in one case radical, in the other conservative.

#### CASE 1

A married woman, aged 67, was admitted to the medical wards of the Montreal General Hospital for diagnosis on March 5, 1929. During the two previous years she had shown marked mental deterioration, with altered habits, and recently had suffered numerous transient attacks simulating hemiplegia with aphasia. Also, an increasing frequency of micturition had been noted, often amounting to a state of incontinence. Hematuria was thought to have been present on several occasions. She was a multipara, was quite confused and deluded, had an irregular pulse, a temperature of 97.6°; a blood pressure of 204/100; and urinary retention. Dark urine, 2,230 c.c. was withdrawn; its specific gravity

\* From the Department of Urology, the Montreal General Hospital.

Read at the sixty-second annual meeting of the Canadian Medical Association, Urological Section, on June 24, 1931, at Vancouver.

was 1020, its reaction alkaline; albumin +; sugar 0; microscopically pus and red blood cells. The incontinence continued. Catheterization was performed irregularly, and large quantities (1,000 to 2,000 c.c.) were withdrawn on each occasion. The hæmaturia increased. Regular catheterization was advised on March 9th.

March 11th. X-ray examination of the genito-urinary tract was negative.

March 19th. Cystoscopy was performed. The urine was turbid, its specific gravity 1020; reaction alkaline; albumin +++++, pus cells 30 per high power field; red blood cells +++++. The capacity of the bladder was reduced. The bladder wall presented a grey sloughing appearance, with numerous tags of slough; no normal mucosa was observed. The ureteral orifices could not be seen. The diagnosis was acute gangrenous cystitis.

Cystostomy was advised and carried out on March 20th. The bladder wall was friable and covered with an adherent slough, dark, sticky, greyish, gangrenous in character. Culture gave no growth. Drainage was effected by a Freyer tube. There was slight temporary improvement, followed by a lapse into unconsciousness, with chills and high temperature, toxæmia and death on March 26th. The blood urea, which was 27 mg. per 100 c.c. on March 8th, rose to 45 on March 24th; 99 on the 25th, and 116 on the day of death.

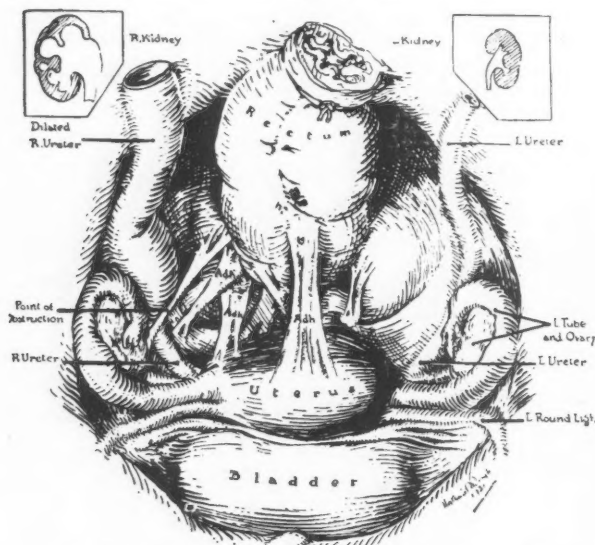


FIG. 1.—Showing bands of fibrous adhesions in pelvis. One was attached to the right ovary and right sacro-iliac region, passes over and obstructs the right ureter leading to right hydro-ureter and right hydronephrosis. The left ureter and left kidney are normal.

**Autopsy.**—The bladder showed a gangrenous cystitis. The left ureter and kidney were normal; the right ureter and kidney were greatly dilated and filled with a foul smelling, dark brown material. The kidney cortex was much inflamed. The point of interest, and one accounting for the right pyo-ureter and pyo-nephrosis, was found in several pelvic adhesions, one of which ran from the postero-lateral border of the right broad ligament to the peritoneum just behind the sacro-iliac synchondrosis. This latter band crossed the ureter close to the bladder and tightly compressed the ureter, leaving a distinct furrow in it, below which the ureter was of normal calibre; immediately above it, the ureter was widely dilated.

The association between cause and effect in this case seems to be most evident, and there is no reason to doubt the rôle played by the peritoneal bridle of adhesions in dilating and

leading to the infection of the ureter and kidney above it.

#### CASE 2

A man aged 54, who had suffered from repeated attacks of pain in the left lower quadrant of the abdomen, was admitted to the service of Dr. A. T. Bazin in April, 1925. These attacks had been present, off and on, since an abdominal operation in 1919 for a presumed bowel tumour. In 1923, the abdomen was opened for adhesions, but without relief. Before entering hospital, the attacks of pain had become more frequent and more severe. They were abrupt in onset, colicky, associated with nausea, and an increased desire to urinate, which act gave relief. Cystoscopy was done on several occasions, pus being obtained from all specimens of urine, from the bladder and kidneys, but more from the left ureter. Urography was never entirely satisfactory. The left ureteral orifice was smaller than the right, and there was a suggestion of ureteral narrowing. No hydronephrosis. Ureteral dilatation was advised and practised to No. 11 Fr. on several occasions. The attacks of pain continued, however, and he was readmitted in November, 1925. The urine contained a few pus cells. Pyelography was again unsatisfactory, but, at least, revealed no definite lesions of the urinary tract. It was felt that the crises of intermittent hydronephrosis were due to an extrinsic condition, and laparotomy was advised. Dr. Bazin opened the abdomen and found many adhesions in the left lower quadrant, which were, with difficulty, separated. The omentum was adherent to the sigmoid which was much distorted. This was freed as well as possible. The patient remained well for over a year and free from pain, and gained 38 lbs. in weight. The pains then recurred; he suffered frequent attacks, sudden in onset, cramp-like, associated with vomiting, and accompanied by a gradual loss of weight (23 lbs. in three months). The urine showed a small amount of pus. Readmitted to hospital in January, 1927, he was again carefully and thoroughly examined, with negative findings. The barium enema was negative. The spinal fluid was normal. Pyelography was more satisfactory and showed a normal kidney and ureter on the side of the pain. Nephrectomy was considered, but the urological opinion was adverse, and laparotomy was again performed by Dr. Bazin. Again a mass of adhesions was found between the bowels and pelvic walls, with attachments to the bladder. It was not possible to achieve their satisfactory separation, so dense and numerous were they. The attacks returned immediately after discharge; some of them, observed by his physician, were considered definitely hydronephrotic in character, and purulent urine was noted after them. The man was readmitted in May, 1927. Pyelography showed a normal kidney. There seemed to be nothing else to do but to remove a normal kidney, which was reluctantly done on May 12th. Examination by the pathologist of the sectioned kidney revealed nothing more than a slightly dilated pelvis, and a small scar in the cortex which suggested a healed inflammation. The patient has been perfectly well ever since.

The proof of the causal relationship between peritoneal adhesions and hydronephrotic attacks is not so clear in this case, but such a conclusion seems warranted clinically. Certainly the therapy was heroic, but was justified by the results. At least, attempts were made with conservative methods of treatment.

The next case illustrates the possibility and value of conservatism.



## CASE 3

A woman aged 57, was admitted to the urological service in February, 1929, referred by Dr. W. E. Rowley, of Saint John, N.B. For a year and a half she had suffered attacks of pain in the left lower quadrant, associated with increased frequency of urination (day, 7 to 8 times; night 5 to 6). More recently she had complained of pain and soreness in the left costo-lumbar region. She had had one febrile attack, with pain in the left loin and pyuria. An attempt at catheterization of the left ureter had been made locally and the catheter was thought to be blocked a few centimetres up the ureter. The tentative diagnosis of ureteral stricture had been made.

On admission there were pus cells in the urine. The woman had a senile vaginitis; the uterus seemed to be pulled to the left. Catheterization of the ureters and pyelography were easily done, and normal findings obtained. The diagnosis was peritoneal adhesions; intermittent hydronephrosis and pyelonephritis. A laparotomy was advised, but the patient did not consent.

She returned in August of the same year. Soon after leaving the hospital she had begun to suffer frequent aching pains in the left costo-lumbar region, radiating down the left ureter. With the pains, frequency was increased, and dysuria and cloudy urine were noted. Between the attacks, the frequency of micturition was normal.

Cystoscopy again gave a normal urogram of the left kidney and ureter. Laparotomy was again advised and agreed to. On September 7th, Dr. H. M. Little operated. The following is quoted from the operation report: "The sigmoid has fallen over and is adherent to the base of the broad ligament posteriorly. Fairly dense adhesions. These were released, and the uterus suspended to the anterior abdominal wall. The ureter was palpated after this under the area occupied by the adhesions; it appeared to be normal."

The patient was hardly out of the anæsthetic before she joyfully admitted her pains had disappeared. She has been perfectly well in the two years which have elapsed since the operation.

## INTRATHORACIC NEOPLASMS\*

By A. A. ROWAN, M.D.

*Ste. Anne de Bellevue, Que.*

IN presenting the five cases of new growth in the chest which have been admitted to this institution during the past two years, the literature on the subject will be briefly reviewed.

In regard to the co-existence of cancer and tuberculosis, Rokitsansky stated in 1841 that new growth and tuberculosis are rarely found in the same organ. Schneider<sup>1</sup> submits a series of 7 cases of pulmonary tuberculosis which developed cancer, but of these, the new growth was found in the lungs in one patient only and that a fibroid case with negative sputum. Landis states that in 633 autopsies on tuberculous patients no cancer was found. McCaskey reports that in 281 post-mortem examinations on patients dying of cancer, tuberculosis was found in only 1.25 per cent. Fishburg saw two patients with pulmonary new growth who had a positive sputum, and two cases of cancer at post-mortem which had tuberculous cavities. In 1896 the incidence of cancer of the lung, discovered post-mortem, was only 0.1 per cent of all autopsies. In 1924, 2 per cent of autopsies generally were on individuals with carcinoma of the lung.<sup>2</sup> Pulmonary carcinoma has been found to the extent of 1 per cent of all cancer, 2 per cent of all pulmonary deaths, and one-third of 1 per cent of all post-mortem examinations.<sup>3</sup> McRae, Funk and Jackson<sup>4</sup> state that 7 per cent

of all cancer is in the lung and that nine-tenths of the patients are over 35 years of age. Fishburg mentions 35 as the minimal age at which one finds pulmonary carcinoma. Markler and Wolf<sup>5</sup> report a case at 28 years of age. In this series there is one man of 34 but he did not have a primary lung cancer.

The consensus seems to be that the disease is more common in men than in women. Hoffman<sup>6</sup> believes that occupation may play a part in the etiology of the disease. He is of the opinion that gas-warfare, influenza, and smoking have no connection in this respect, but that occupation in modern industry or air pollution in modern road transport may have something to do with the etiology. He accepts the general opinion that pulmonary carcinoma is on the increase. The same author speaks also of the occurrence of the disease on the two sides. In 163 cases he found the right side involved in 78, or 47.8 per cent, the left side in 67, or 41.4 per cent, and both sides invaded in 18 cases, or 11 per cent.

Rubenstein and Schwartz<sup>7</sup> have conveniently divided pulmonary carcinoma into three forms: first, that in which the growth is found to be essentially parenchymal; the second, in which the pleura becomes thickened or reacts by means of pleural effusion; and, thirdly, that in which there is pronounced cavity formation. These types are well illustrated in the present series.

\* From the Pulmonary Service, Ste. Anne's Military Hospital, Ste. Anne de Bellevue, P.Q.



The onset of pulmonary carcinoma has been described as insidious, with cough and mild fever. From our limited experience it might better be described as catarrhal or bronchial, the more acute stage of the illness (in 4 out of 5 instances) beginning with the signs of pleural involvement. The onset is very similar to that of tuberculosis, though a proper history should not read the same in both diseases.

Opinion differs in regard to the diagnostic value of case histories, symptoms, physical signs and x-ray films. Fishburg believes that of itself, x-ray is of least value. Hirsch<sup>8</sup> states that physical findings are of no value whatever and that x-ray and histories are *the* important diagnostic methods. It is my opinion that early diagnosis of new growth of the lung is not apt to be made, and that the information gleaned from x-ray plates and from physical signs, and particularly from the laboratory reports, is of most value from a negative standpoint. Diagnosis is to a great extent a matter of exclusion. If the sputum is persistently negative for acid-fast bacilli and spirochaetes, one is not apt to be dealing with either pulmonary tuberculosis or bronchiectasis.

Diagnosis in this as in every disease is to be arrived at by consideration of all points which the case has to offer. If one is so fortunate as to see a suspicious case early, bronchoscopy and lipiodol injection must not be neglected. If one can obtain an x-ray taken in recent years it is of great help particularly in patients of the cancer age. An earlier diagnosis is apt to be confusing. At the risk of being wrong it is often better to consider the former diagnosis inaccurate until you have worked the case out for yourself. A history of early bronchitis, suggesting an exacerbation of an old chronic bronchitis or the starting of bronchiectasis, was given in four of the five cases reported here.

The value of an x-ray plate depends upon the area of lung presented to view and the clearness with which detail is brought out. In advanced cases, to be very useful, the films must not be obscured by pleural opacities. But even if only one side or the apex of the affected lung is shown clearly the films will be of use, as tuberculosis is usually bilateral and is found most frequently in the upper third. The withdrawal of fluid and replacing by artificial pneumothorax as a diagnostic measure should be tried.

Chest films ought to indicate, at least, what one has not got and are very comforting for that purpose. The character of the sputum, whether greenish and mucopurulent, the quantity and its odour, whether putrid as in lung abscesses or other spirillum infected processes, or whether mostly frothy, is always informative. Above all the organisms present after repeated search will help more than anything else.

In order to distinguish bronchiectasis from new growth it is well to remember that the former is the more common disease. The history is of use and the large amounts of foetid sputum, often loaded with spirochaetes in rapid motion, is immediately suggestive. The coarse râles over the affected lobes and the x-ray picture obtained after posturing and the injection of lipiodol, make the diagnosis fairly easy. Periodic attacks of "congestion" and less frequent broncho-pneumonias are to be seen with bronchiectasis. The disease frequently progresses to abscess formation, and clubbing and Hippocratic incurvation are marked if it has been present for any length of time. Bronchiectasis may be complicated by carcinoma, in which case the "lipiodol plates" are often diagnostic. Carcinoma, in its later stages is not infrequently associated with a recent bronchiectasis which it has brought about.

#### CASE 1

E. W. M. (No. 2068) upholsterer, aged 55, admitted on February 28, 1930.

*Family history.*—Negative.

*Personal history.*—He had had chronic bronchitis and "rheumatism" or "myalgia"; no evidence of tuberculosis.

*Present illness.*—The patient had been in poor health since the war, suffering from periodic attacks of weakness, myalgia and bronchitis. In August, 1929, he weighed 118 pounds and noticed in September that he was becoming weaker. He began to raise about a quarter of an ounce of sputum daily. There was no blood-spitting and no acute illness. On January 25, 1930, he was seized with a sudden pain in the chest whilst on the street. With this was associated shortness of breath, sweating, coughing and the expectoration of a considerable amount of viscid sputum which soon became blood-tinged. He rested for three days, then returned to work, raising much heavy sputum. Three weeks later he was sent in to hospital on account of rheumatic pain.

*Condition on admission.*—The joints were not swollen or deformed. The heart was rapid, not enlarged; no murmurs. The upper lobe of the right lung gave an impaired note on percussion; the voice and breath sounds were accentuated, and expiration prolonged. There was evidently a pneumonic process involving this lung. The base was clear, also the left lung. X-ray examination on February 25, 1930, showed pneumonic area right upper lobe; whole lobe involved; thickened pleura on right diaphragm; trachea displaced to right. This signifies some old underlying lesion. Left lung

clear. The films showed an opacity above the interlobar line which might have been due either to pleurisy or to atelectasis. The physical signs hardly bore out this supposition. An x-ray of March 21st showed that the left border of heart, trachea and aorta were not displaced to right. The whole of the right chest was dense, with appearance of fluid. The left lung was negative. Sputum, Wassermann test and urine were all negative. Previous to this, on March 8th, the x-ray revealed a clear field at the right apex and the rest of that side dense, with presence of fluid level.

Thoracentesis was done to relieve dyspnoea on March 16th and 1,800 c.c. removed. This was repeated on several occasions, but with no lasting benefit. The fluid produced no tuberculosis after being injected into



FIG. 1.—Case 1. Pleurisy extending to base. Two pockets. No tuberculosis.

a guinea pig. After a month the patient was transferred to the pulmonary service, the supposition being that he was suffering from tuberculosis.

The symptoms elicited were frequent and increasing cough; sputum, oz. iv, increasing to oz. viii, mostly frothy, with small traces of blood, later becoming heavily coloured; pain in right side of the chest, sometimes requiring morphia; very marked dyspnoea; pain in præcordium; diarrhoea for a few days only; flatulence; failing appetite; nocturia (once); night sweats; great weakness. Temperature, 98.4° to 101°; pulse, 94 to 100; respirations, 26 to 28.

*Physical examination.*—A thin weak oldish man, with dry and cyanosed lips; the face was rather cachectic. There were marked incurving of the nails; general wasting; no glandular enlargement. Blood pressure 90/65. The heart showed nothing abnormal. The chest was noticeably bulged in the lower right region, with movement on the left only. On the right the note was impaired gradually to dullness below the 3rd and 4th ribs and 4th and 5th dorsal spines; some degree of resonance above the 4th dorsal spine. Breathing was audible in front medially and rather amphoric down to 4th rib and 8th dorsal spine. Râles not clearly heard. The left side was hyper-resonant, more especially below 5th rib and 5th dorsal spine; breathing harsh. Large, coarse moist râles were heard, with a faint tinkling note, probably transmitted, and a rough pleuritic rub, the latter heard best below 3rd rib and 6th dorsal spine.

The abdomen was resistant and slightly tender, with possibly a slight amount of fluid in left flank. The liver was enlarged or pushed down.

The sputum was negative to tubercle bacilli in 18 examinations.

April 2, 1930, fluid (300 c.c.) withdrawn for diagnostic purposes and replaced by air. It was slightly turbid, thin, yellow. Minus 5 plus 3½ was first reading of manometer. Two hundred c.c. of air were given and the chest left at plus 10 plus 4½.

X-ray on April 4th showed the heart slightly more to left. On the right, fluid level was at 2nd rib. Below there was a fairly uniform opacity. A number of x-ray films were taken, but gave no evidence of tuberculosis. The abdomen became very tympanitic, with tenderness of the liver. In the last week in April a certain impairment was noted on examination of the front and side in the lower third of the left side. (This was thought to be due to passive congestion, as the heart was failing. It was probably due to enlarging hydro-pericardium.) The patient refused to lie on the left side and a pronounced oedema of the right side developed. Superficial vessels showed upon the abdomen. The sputum remained blood streaked until the patient became too weak to expectorate. The temperature did not exceed 101° nor the pulse 100, but the latter was very weak and the heart sounds were inaudible. The patient died on May 14, 1930.

The diagnosis was pleurisy with effusion; neoplasm on right side of bronchial or pulmonary origin, possibly with pleural involvement.

*The autopsy.*—Left lung showed anthracosis, otherwise negative. Right lung collapsed below and above the 2nd and 3rd ribs where there was a bridge of lung between. The two pleural cavities so formed yielded a quart of thin straw-coloured fluid, which was not blood-stained. Removed, the lung was hard and showed numerous bronchiectatic-like cavities at the base with a thick whitish lining. The diaphragm was much thickened. The pericardium was much distended, with about a pint of bloody fluid. The heart was small, and, with the kidneys and suprarenals, showed nothing important. The liver was pushed down, not enlarged, and also negative. The spleen contained a hard, small calcified cyst. The pancreas was negative. The mesenteric glands were enlarged. The mesentery itself and the peritoneum were dotted with a multitude of small, white, rather hard granules of the size of swollen rice grains, similar to tubercles. Gross appearance suggested neoplasm of right lung, as likely to be sarcoma as carcinoma. Mesentery suggested disseminated tubercle formation, but this might possibly be new growth.

Microscopic examination showed primary carcinoma of the right lung with extension to both layers of the pleura, to the diaphragm, to the mediastinal tissues and pericardium, and to the diaphragmatic peritoneum and mesentery. One gland considered to be tuberculous was found in the hilus.

This patient's case early appealed to me as one of pulmonary new growth. In favour of this was the absence of tubercle bacilli in one so ill as he was, suffering from pleurisy; the fact that the plates of 1926 were negative for tubercle; that the sputum was so steadily and heavily streaked with blood; that the facies did not present the usual appearance seen in pulmonary tuberculosis and that the history was not that of a tuberculous case. The rapid reforming and steady increase of the pleural effu-



sion and the high level of the fluid were things certainly atypical of tuberculosis.

#### CASE 2

E. J. (No. 449119), teamster, aged 51, admitted on August 17, 1928.

*Family history.*—Unimportant.

*Personal history.*—"Rheumatism" since 1916; bronchitis since 1927 only; valvular disease of the heart, dating from war service.

*Present illness.*—The patient stated that he had not been able to work since the summer of 1927, owing to increasing shortness of breath and bronchitis, but that he had been about until June of this year when he began to find blood continually in his sputum. He had lost 18 pounds since December, 1927. He was sent in with a diagnosis of an exacerbation of bronchitis or as suffering from bronchiectasis, and was treated as an outdoor patient in May, 1928, and in hospital wards in June, and diagnosed in the following order, as a case of bronchiectasis, pulmonary tuberculosis, and new growth.

*Complaints.*—Cough, frequent and racking; expectoration, over 2 oz. of sputum heavily streaked with blood; pains in chest; sleep broken by cough at night; somnolence during the day; anorexia; constipation; nocturia; urine rather scanty; weakness.

*Physical examination.*—A thin, very ill-looking man who seemed hardly able to speak. Orthopnea was present and a slight bronzing of the skin. The chief points noted in the general physical examination were: Considerable oral sepsis; wasting of the muscles; no enlargement of glands, venous pulsation in the neck; blood pressure 115/64. Heart sounds weak; no great enlargement. The chest was flat and phthisical; the right clavicle more prominent than the left. The right side showed marked impairment of the percussion note over the back, more so below the 5th rib and 5th dorsal spine. The breathing was bronchial, lessened in front below 4th rib, and almost absent below 6th rib and 6th dorsal spine. There were moist sounds in the axilla and dry râles were heard plainly elsewhere.



FIG 2.—Case 2. Showing spread of disease. No pleural effusion.

The note on the left side was impaired but less than on the right, to some extent in the axilla and over back, especially below the 3rd dorsal spine and base of the axilla. The breathing was bronchial, but less loud than on the right. Fine râles were well heard in axilla; dry crackles were made out in front. The abdomen showed nothing of special note. The sputum was muco-purulent and frothy, and contained considerable blood; no tubercle bacilli found. The urine was negative and the Wassermann test was negative also.

X-ray on August 20, 1928—The outline of the heart obscured but enlarged to the left. Increased density at right base. Mottled areas over both lungs. Appearance might be caused by a new growth at the right base.

September 18, 1928, comparison of films made to-day with those made last month showed the following: *Right:* diaphragm not made out. Ground glass appearance up to the 3rd and 4th ribs. Star, or cloudy vague-shaped areas seen down to the 5th and 6th ribs with smaller and similar areas amongst them. *Left:* Heart shadow very irregular, merging with cloudy and fainter small areas like tubercles existing throughout the lung. Diaphragm made out with much haziness above it. Scoliosis of spine to the left. Comparing with the first films it is seen that there is great extension.

The patient's voice became very hoarse, but it was impossible to see the cords. He suffered from night-sweats, increasing dyspnea, and pains in the chest. The sputum was continuously and heavily blood streaked. Râles were heard, but poorly, owing to increasingly poor ventilation of the lungs. The temperature ranged from 97° to 100°. The pulse ran between 80 and 90. During the last week the temperature became subnormal, and the pulse was counted as 72 and 78. The breathing became Cheyne-Stokes in character. The man became unconscious and death took place on September 24, 1928.

The diagnosis was new growth of both lungs; valvular disease of the heart; myocarditis; arteriosclerosis; bronchitis; laryngitis; pulmonary tuberculosis (?).

*Autopsy.*—Neoplasm of the right and left lungs, with metastases in the liver and mediastinal glands; endocarditis, seen best in the aortic cusps; dense pleural adhesions with likelihood of pulmonary tuberculosis also.

*Microscopic findings.*—Primary carcinoma of the right lung with metastases in left lung, pericardium, liver, retroperitoneal and mediastinal glands. The adrenals and prostate were clear. Old aortic sclerosis; chronic interstitial nephritis. In places in the left lung the tumour masses were small and divided into nodules by fibrous tissue.

The points in this case which led to the diagnosis of new growth of the lung were: the slight bronzing; the absence of the facial expression usually found in patients who have suffered long with weakness and tuberculous symptoms; the fact that the sputum was so regularly and heavily streaked with blood; the nature of the sputum, not muco-purulent, green and fairly frothless as in far advanced tuberculosis, or copiously purulent as in bronchiectasis; the absence of a positive sputum, always the most significant feature in the diagnosis of a non-tuberculous cause in patients dying from an intra-thoracic disease; the fact that as a rule fatal phthisis is not found in people with a long standing endocarditis; the findings in the hospital the man had been in before, where a



lipiodol injection had suggested the presence of carcinoma. The patient's history, poor as it was, aided the diagnosis, and the x-ray also was of distinct help in this case.

### CASE 3

F. H. (No. 65427), chauffeur, aged 41, admitted on November 28, 1928.

*Family and personal history.*—Unimportant.

*Present illness.*—There had been increasing weakness and repeated illnesses (myalgic, arthritic, etc.). In the spring of 1928 he suffered an attack of pleurisy, and two months afterwards had an indeterminate amount of blood spitting. Weakness became great and cough and expectoration, as with previous bronchitis, became worse. There had been considerable wheezing and dyspnoea.

*Complaints.*—Marked weakness; frequent coughs; sputum copious, white and frothy; soreness in the chest; dyspnoea; pain about the heart; loss of appetite.

*Examination* showed considerable wasting of tissues; much dyspnoea and weakness; temperature 100°; pulse 100-120; no palpable glands; larynx clear; blood pressure 100/85. Heart showed a soft systolic murmur over the precordium, but no marked enlargement.

*The chest.*—The right side moved much more freely than the left which had very little excursion. There was slight impairment above the 1st rib and 4th dorsal spine; breath sounds, greatly increased. No râles were heard. The left side was impaired on percussion below the 2nd rib and 4th dorsal spine in a curved line as from a fluid meniscus. The breathing was diminished all over, absent below the 3rd rib and 7th dorsal spine. There were a few moist sounds above the 3rd rib. A pleural rub was audible, heard best along and above a line joining the 2nd rib to 4th dorsal spine. Urine, negative; sputum, negative to tubercle bacilli after 4 examinations.

An x-ray on November 28, 1928, showed the heart, aorta and trachea to be displaced to the left; an appearance of compensatory emphysema in right lung; left half of the diaphragm invisible; a dense area above it, suggestive of thickened pleura. The appearance might also be caused by fluid. This area extended from the base to the 4th rib in front; the heart shadow was apparently half way out in field. Some opacity also from the 4th rib to the 2nd rib. Bronchial tree intensified and areas of congestion below 1st rib anteriorly. Apex clear.

December 14, 1928.—Heart, aorta and trachea were displaced to the right. The lower two-thirds of the left chest were dense with appearance of fluid. Comparison with former films showed that heart was now displaced 3 inches to right and that fluid had increased. (Fig. 3). There seemed to be an area of increased density along the level of the 3rd right rib in front. The fluid level was up to the 3rd and 4th ribs. Areas of what were taken to be tuberculosis in the 2nd interspace.

Thoracentesis done: 500 c.c. of light, greenish, fairly thin, sticky fluid were withdrawn from the left side of chest. Laboratory reports no tubercle bacilli or other organisms. Injection of a guinea pig gave negative results.

December 19th and 21st, 500 and 600 c.c. of similar fluid removed.

December 27th, dyspnoea more noticeable. Heart found more to the right; fluid evidently re-forming. The sputum now became very foul smelling and copiously purulent. The patient was very weak.

December 30th, the patient was suddenly stricken with a severe pulmonary hæmorrhage and died within a few minutes.

The diagnosis was pulmonary tuberculosis on left side, of long standing, with cavity and pleurisy with effusion on left.

*Autopsy.*—Heart and chest generally showed a large amount of fatty deposit. On the left there was marked pleural thickening and the fluid present there was partly solidified. No obvious fistula into bronchi. The apices of both lungs were clear. The right lung, apparently negative. In the lower two-thirds of the left lung was a great ragged walled cavity, large enough to contain a

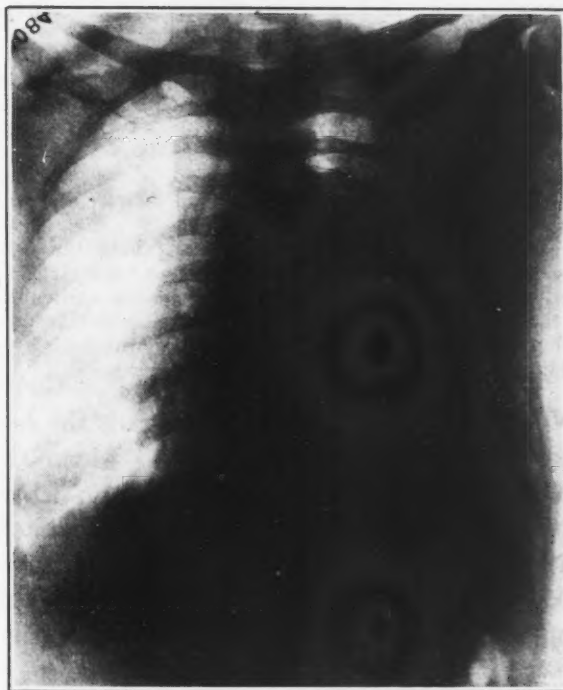


FIG. 3.—Case 3. Heart displaced to right. Pleural effusion increasing, masking an excavating carcinomatous left lung.

small fist. Microscopy revealed that we had been dealing with primary epidermoid carcinoma of the left lung which had become necrotic and eroded the pulmonary vessels. Metastasis had occurred in regional lymph nodes and there were several patches of fibrosis due to old tuberculosis.

It is difficult to determine when the first symptoms of carcinoma manifested themselves. The history was confused and misleading and the pleural effusion masked what lay behind in the left lung.

### CASE 4

S. M., (No. 2063), a civil service clerk, aged 48, admitted on April 4, 1928.

This patient was treated in the general wards and seen by the present writer only in consultation.

*Previous illnesses.*—Cardio-renal disease existing since 1916. Associated bronchitis seemed likely, from a note of 1917 mentioning scattered râles in chest, though ascites was also present at that time.

*Complaints.*—General body aches, pain across the chest. In May, when I saw him, there were in addition an almost constant cough, a copious frothy expectoration (8 oz.), marked dyspnoea and orthopnoea, and later swelling and pain in a mass above the right clavicle.

*Physical examination.*—A stout, emphysematous, dyspnoeic man, with a rather dark and slightly bronzed face. Lips, cyanosed; flesh, flabby; heart, slightly enlarged to the left, 2nd sound at base accentuated, no murmurs, rhythm regular but rapid; pulse on admission,

120 at rest to 150 after exertion; blood pressure, 201/110; chest, emphysematous; poor expansion; sibilant and sonorous râles scattered throughout both lungs; moist râles over the upper right chest. Sputum, negative; urine, 1028, albumin, hyaline casts, no sugar.

X-ray report on April 10th: Heart much enlarged. Aortic shadow broadened, suggesting aneurism, with fluid at right base. This appearance could also be caused by new growth. If fluid is blood-stained, probably the latter. May 25th: Heart displaced to right or else is smaller than normal. Shadow of aortic arch is normal; trachea central. The lower two-thirds of right lung is uniformly dense, suggesting fluid or solid, possibly new growth, but aneurism not excluded.

May 4th, and June 2nd: Thoracentesis yielded no fluid.

May 17th and 21st: Sputum reports were negative for tubercle bacilli.

June 24th: Confluent glands noted above the right clavicle. June 28th: Transfer of patient to a city hospital with a diagnosis of cardio-renal disease and cancer of the lung. This was confirmed at the second hospital and patient allowed to go home. In August, both arms became swollen and oedematous, with much pain.

Of interest in such a limited series is the fact that this was the only patient in whom the glands of the neck were enlarged or in whom the circulation in the arms became blocked. There was apparently no pleural effusion, bloody or otherwise. The heart is reported as displaced to the right, which would suggest that atelectasis might have been present at one stage. The heavily streaked bloody sputum is not seen here. With regard to the x-ray it cannot be too strongly stressed that the presence of opacity over a portion of the lung field is not a *prima facie* evidence of pleural effusion. Such an opacity indicates either a pneumonic or atelectatic condition of the lung, or an inflammation of the pleura which is possibly secondary to some underlying pulmonary state. A pleural effusion rarely fills the whole hemithorax, but more often with cancer than with other conditions. If the fluid is confined in a sufficiently narrow space to form a meniscus it may show a curved line, higher posteriorly than in the axilla. Simple effusion, as in an old spontaneous pneumothorax, will show a transparent area above the fluid level and the plate demonstrates whatever may lie there; not so if the lung-covering itself is inflamed. It is this which causes an opacity even above the level of fluid in such cases. What may lie behind it is always problematical from an x-ray standpoint. The use of lipiodol is helpful to exclude possible bronchiectasis or to demonstrate bronchiectasis due to new growth, or the blocking of main trunks in such a manner as to suggest cancerous obstruction. We return to the fact of which roentgenologists

are never tired of telling us, that the x-ray is only one of the means at our disposal for purposes of diagnosis. With the presence of pleural opacity it is not one of the most reliable means.

#### CASE 5

A. A., (No. 455674), a steel worker, aged 34, admitted on June 25, 1930.

The following data were obtained through the co-operation of the United Israel Zion Hospital of Brooklyn, to which the patient was admitted on June 10th.

*Family history.*—Father, a glass blower, had had frequent attacks of dyspnoea. Maternal uncles, all glass-blowers, died of tuberculosis. His mother died of cancer of the breast.

*Personal history.*—Negative.

*Present illness.*—On May 27, 1930, after a wetting the patient experienced a chill and pain in the right chest. He developed a painful cough. There was no sputum or temperature, but sweating was profuse. After a week the pain disappeared, but the cough persisted and dyspnoea became more and more noticeable.

*Physical examination.*—The eyes, ears, nose and mouth were negative. In the neck the carotids were equal, the veins dilated. Heart; displaced towards the right; no murmurs; sounds at the base, distant; blood pressure, 120/80; blood: hæmoglobin 70 per cent; red blood cells 3,950,000; white blood cells 7,000; pulse, 120; respirations, 20; temperature, 99°. The Wassermann test was negative. Prostate, enlarged, soft.

X-ray on June 11, 1930: mediastinum greatly widened; bilateral opacities were noted involving lower half of both sides of the chest. (Fig. 4).



FIG. 4.—Case 5. Bilateral pleural effusion. Lung very slightly invaded. Sarcoma of mediastinum invading heart down to the inner muscle cells.

The fluid removed on June 7th was sero-fibrinous, containing red cells, lymphocytes, polymorphonuclears and many mononuclear basophilic cells. The cytoplasm of these last, mostly scanty, was basophilic throughout. The character of these cells was plainly neoplastic, highly suggestive of a sarcomatous type. Hence a diagnosis was made of sarcoma with pleural encroachment. Car-



cinoma was ruled out because the cells were all single, i.e., there were no epithelial cell clusters.

Thoracentesis was done several times with the same result and the chest filled very quickly. The patient ran a low grade temperature with the peak at 101°. The pulsation of the left carotid was found to be markedly diminished on June 21st on the right side. No sputum was obtained.

His symptoms on admission to Ste. Anne's were: dyspnoea, sense of pressure in the chest, cough and swelling of the ankles. Examination showed no emaciation; some bronzing of the skin. The lips were very blue and pendulous. The heart outlines were not distinguishable. Pulse, 110 to 120.

Lungs: Impaired to flatness below 3rd and 4th ribs on the right side. Breath sounds audible above 3rd rib, absent below. Râles, not loud or suggestive of underlying phthisis. On the left there was impairment, as on right, but less so. Breathing more clearly heard, even below 3rd rib. Râles of a fine pulmonary congestive type were audible from apex to 4th rib and faintly below this to the 5th rib. Abdomen, normal.

X-ray examinations showed opacity on both sides of the chest, the upper borders which were not clear or level. Above the level of opacity at 3rd rib were no markings suggestive of tuberculosis or tumour. The heart and mediastinal shadows were almost indistinguishable from the general lower thoracic opacity.

The patient became weaker and more dyspnoeic, cyanosis increased, and towards evening he became unconscious, dying at 11.35 on the evening of his admittance.

The diagnosis was failing cardiac compensation, myocarditis and pleurisy, with probably a little fluid on the left and more on the right.

The post-mortem diagnosis was "probable carcinoma of the mediastinum," with metastasis in the retroperitoneal glands, and a right and left hydrothorax.

Microscopic examination of the removed organs showed that the pancreas, kidneys, liver, and the greater part of the tissue of both lungs were free of invasion by new growth. The mediastinal structures were removed en masse, as they were converted into a large solid mass about the size of a man's head. The lungs were soft, flabby and collapsed. The œsophagus and aorta lay posteriorly, flattened out by pressure of the growth. The trachea and main bronchi were not invaded. The aorta passed through the mass but was not invaded by tumour. The superior vena cava lay on the right border of the mass, was not invaded but was completely flattened. The lumen of the left jugular vein was partly occluded by tumour cells and the left at its juncture with the right innominate vein was also blocked by new growth. The anterior mediastinum was a solid mass of tumour which had grown down over the pericardium which itself has been invaded. The heart was covered by a rough and nodular jacket of tumour. The wall of the left ventricle showed a broad band of tumour with an abundance of connective tissue, which was apparently the greatly thickened pericardium. Beneath this the whole wall of the heart was invaded, the muscle cells being widely separated by tumour masses towards the

outside and but thinly separated next the endocardium. At the hilus of the lung large nodules of new growth were found, and at that point the lung and the pleura were also slightly invaded. Further metastasis were found in periaortic nodes above the pancreas. Here, as elsewhere, the veins were invaded. In the adrenals and various lymph nodes metastases were found. The growth was composed of closely packed, small round cells with compact densely staining nucleus and scanty cytoplasm. All were like this, but for an occasional large, pale staining cell encountered well apart in different localities. Small blood vessels accompanying the tumour were composed of a single layer of endothelial cells only. Mitotic figures were few. The question arose as to whether it was a thymoma or a lymphosarcoma, but it would appear that the new growth was a pure lymphosarcoma, with invasion of the veins and bronchi, but not of the arteries.

The above history illustrates four points:—

(1) that the involvement of the heart and occlusion of the great vessels by pressure give the superficial clinical appearance of myocarditis and failing compensation; (2) that the x-ray examination is only helpful in proportion as the extent of thoracic contents is visible above pleural opacities, should such be present; (3) that the pathological examination of pleural fluid obtained by thoracentesis is of distinct help in the diagnosis of new growth in the chest where pleural effusion happens to be present; (4) that the presence of intra-thoracic neoplasms cannot be ruled out solely on account of the relative youth of the patient.

For the examination of these and other slides we have to thank Dr. J. F. Pritchard of the Pathological Department of the Montreal General Hospital. We are indebted also to the staff of the United Israel Zion Hospital, Brooklyn, for their kind and full communication on the condition of the patient whilst under their care. Dr. Norman Bethune was so kind as to make suggestions for which the author is duly grateful.

#### REFERENCES

1. SCHNEIDER, *Am. Rev. Tuber.*, 1929, 20: 271.
2. FERENCZY AND MALTOLCSY, *Abst., Wien. klin. Wchnschr.*, 1927, in *Am. Rev. Tuber.*, 1928, 18: 75.
3. HYDE AND HOLMES, *Abst., Am. J. Roentgenol. & Rad. Therapy*, 1927, in the *Am. Rev. Tuber.*, 1928, 18: 77.
4. MCRAE, FUNK AND JACKSON, *J. Am. M. Ass.*, 1927, 89: 1140.
5. MARKLER AND WOLF, *Abst., Am. Rev. Tuber.*, Oct., 1928.
6. HOFFMANN, *Am. Rev. Tuber.*, 1929, 19: 392.
7. RUBENSTONE AND SCHWARTZ, *Med. J. & Rec.*, 1927, 126: 719.
8. HIRSCH, *Radiology*, 1927, 9: 470.

#### THYROIDECTOMY IMMEDIATELY BEFORE PARTURITION.

R. Fontaine and R. Bauer report an unusual case of a large goitre for which a thyroidectomy was performed within a few hours of parturition. The patient, who was the mother of four children, was admitted to hospital with a huge colloid and cystic goitre which was causing severe pressure symptoms. The goitre had been present for several years and had increased in size with each pregnancy, and when seen the patient was suffering from intense dyspnoea, her face and limbs being cyanosed. Fetal heart sounds could be heard, but it appeared necessary to relieve the asphyxiation of the mother if the child's life was

to be saved. The operation was conducted under local anæsthesia, novocain being used with continuous inhalation of oxygen. Thyroidectomy was performed; the goitre, which was found to be multi-nodular and parenchymatous, weighed 600 grams. The respiratory distress was immediately relieved, and six hours after the operation labour pains began. Delivery was expedited by the use of forceps, and two hours later a healthy child was born. Convalescence was normal, except for some irregularity of the heart which necessitated rest. The patient was finally discharged from hospital at the end of six weeks in excellent health.—*Bull. et Mém. Soc. Nat. de Chir.*, 1931, 20.



### THREE YEARS' EXPERIENCE WITH VACCINATION AGAINST THE COMMON COLD

BY R. VANCE WARD, M.D.,

Montreal

IN December, 1928, shortly after the establishment of a number of health services in some of the leading industries in Montreal, we were visited by an epidemic of acute respiratory disease which resulted in a loss of over 4 per cent of working time over a considerable period. As records were kept throughout the winters of 1927-28 and 1928-29 it became apparent that the acute respiratory diseases accounted for about 40 per cent of all industrial lost-time from sickness, even in normal times. To make some attempt to attack this problem from the purely preventive standpoint seemed to be the duty of an industrial medical service.

Early in January, 1929, we started the work by inoculating with a stock vaccine against colds 75 employees of a large Montreal factory who were, by their own admission and according to the records, very susceptible to these troubles. At the end of three months each of these people was interviewed separately and asked for an expression of opinion as to the efficacy of this form of prevention. Fifty-six, or just 75 per cent of the number inoculated, said that they were benefited by the treatment. The story over and over again seemed to be that on several occasions they had had beginning symptoms, which, on the basis of past experience, would lead them to believe that they were going to have a severe cold. Then within twenty-four hours these symptoms would have disappeared and they would be well again.

We considered that this preliminary work gave results of sufficient promise to justify us in going ahead with the inoculation of a large group. During November, 1929, 426 factory employees were given inoculations with the same stock vaccine as we had used the previous January. This vaccine had the following composition: *B. influenzae*, 200,000,000; *streptococcus*, 100 000,000; *pneumococcus*, 100,000,000;

*micrococcus catarrhalis*, 200,000,000; *staphylococcus aureus*, 200,000,000; *staphylococcus albus*, 200,000,000; per c.c., sterilized without heat.

The dosage employed was three minims on the first day, followed by five minims three days later and seven minims five days after that. These 426 people were compared in regard to lost-time with an unvaccinated group of 1,341. The records were kept for four months, December 1st to March 31st, and included lost time from five causes: pneumonia, bronchitis, influenza, colds, and tonsillitis. No notice was taken of pulmonary tuberculosis in this study.

The following results were obtained:

TABLE I.  
VACCINATED GROUP (426)

Disease	No. of absences	Absences per 100 people	Days lost	Days lost per 100 people	Average duration of illness
Pneumonia...	0	0	0	0	0
Bronchitis...	1	0.23	10	2.34	10
Influenza.....	4	0.94	55	12.91	13.75
Colds.....	52	12.21	134	31.45	2.6
Tonsillitis....	8	1.87	29	6.80	3.6
Total.....	65	15.25	228	53.50	....

TABLE II.  
UNVACCINATED GROUP (1341)

Disease	No. of absences	Absences per 100 people	Days lost	Days lost per 100 people	Average duration of illness
Pneumonia...	0	0	0	0	0
Bronchitis...	0	0	0	0	0
Influenza.....	4	0.29	55	4.10	13.75
Colds.....	218	16.25	630.5	47.01	2.9
Tonsillitis....	36	2.67	123	9.17	3.4
Total.....	258	19.21	808.5	60.28	....

Listing side by side the significant points we have:

TABLE III.

Disease	Absences per 100 vaccinated group	Absences per 100 unvaccinated group	Days lost per 100 vaccinated group	Days lost per 100 unvaccinated group	Average duration vaccinated group	Average duration unvaccinated group
Pneumonia...	.....	.....	.....	.....	.....	.....
Bronchitis...	0.23	0	2.34	0	10	0
Influenza....	0.94	0.29	12.91	4.10	13.75	13.75
Colds.....	12.21	16.25	31.45	47.01	2.6	2.9
Tonsillitis....	1.87	2.67	6.80	9.17	3.6	3.4
Total.....	15.25	19.21	53.50	60.28	.....	.....

From the above the following facts stand out:

(1) There was not a single case of pneumonia throughout the factory during the four months reviewed. (2) There was one case of acute bronchitis, and it occurred in the vaccinated group. This was a man thought to have pneumonia outside, but his speedy recovery and return in ten days rules this out. This one case is of no statistical significance. (3) There were 8 cases of so-called "influenza" or grippe, a disease distinguished from the ordinary cold by greater severity and duration and more general and fewer local symptoms. Four of these cases occurred in the vaccinated group and 4 in the unvaccinated group, giving to the vaccinated group an incidence three times as high as the control. (4) The "common cold" accounted for 764½ days of the 1,036½ days investigated, and in this group there was a very satisfactory reduction in number of cases, average duration, and total days lost among the vaccinated group. (5) Tonsillitis accounted for 152 days lost, and here, too, the vaccinated group had proportionately fewer cases and lost proportionately less time. The average duration per case was slightly higher. (6) Considering the total of all respiratory disease, we find that among 100 vaccinated people there were 15.25 absences, with 53.52 days lost, while among 100 unvaccinated people there were 19.22 absences with 60.29 days lost. (7) We took special care to inoculate those people who had the worst record with regard to colds, etc., so that it is some gain if these people were given as favourable an experience as the control group. Their experience as we have seen was somewhat better.

Encouraged by these results we offered similar inoculations to any who wished them in October, 1930. Once again the notices and the personal

canvassers stressed the advisability of the vaccinations for those who suffered from frequent and severe colds. The vaccine used on this occasion was another brand, having the following composition: *B. Friedländeri*, 50,000,000; *pneumococcus* (4 types), 100,000,000; *micrococcus catarrhalis*, 500,000,000; *streptococcus* (hæmolytic and non-hæmolytic), 100,000,000; *staphylococcus albus*, 350,000,000; *staphylococcus aureus*, 350,000,000; *pseudo-diphtheria bacillus*, 100,000,000; *B. influenza* (Pfeiffer), 100,000,000; per c.c.

An initial dose of four minims was given, followed in three days' time by one of seven minims; a final dose of ten minims was given after another five days had elapsed. The work this year was done in October and records were kept for the next four months, in this instance November to February, inclusive. Two hundred and ninety-three employees took advantage of the offer and, as in the previous year, they were listed for comparison with regard to lost time with a control group of 1,486.

The following results were obtained:

TABLE IV.

## VACCINATED GROUP—293 EMPLOYEES

Disease	No. of absences	No. of absences per 100 employees	No. of days lost	No. of days lost per 100 employees	Average duration of illness
Pneumonia	0	0	0	0	0
Bronchitis	0	0	0	0	0
Influenza..	2	0.68	22.5	7.68	11.25
Colds.....	55	18.77	189.5	64.67	3.4
Tonsillitis.	1	0.34	6.5	2.22	6.5
Total...	58	19.79	218.5	74.57	3.77

TABLE V.  
UNVACCINATED GROUP—1,486 EMPLOYEES

Disease	No. of absences	No. of absences per 100 employees	No. of days lost	No. of days lost per 100 employees	Average duration of illness
Pneumonia	1	0.07	5	0.33	....
Bronchitis	1	0.07	3	0.20	3
Influenza...	3	0.20	13.5	0.90	4.5
Colds.....	322	21.67	899.5	60.53	2.8
Tonsillitis	27	1.81	102	6.87	3.77
Total...	354	23.3	1023	68.84	2.89

the injection, nausea, malaise, headache and symptoms of the common cold—a sufficient number to make us feel that we had pushed the dosage to the limit allowable. In the case of lost time the inconvenient question of “who pays” is always raised. Although the condition is not the result of an industrial accident, yet some employees feel that they should be paid for lost time the result of a procedure sponsored by the company.

In the first series of 75 one young girl with a hitherto unblemished complexion developed a severe crop of acne pimples on the face im-

TABLE VI.

Disease	Absences per 100 employees vaccinated group	Absences per 100 employees unvaccinated group	Days lost per 100 employees vaccinated group	Days lost per 100 employees unvaccinated group	Average duration of illness vaccinated group	Average duration of illness unvaccinated group
Pneumonia...	0	0.07	0	0.33	0	....
Bronchitis...	0	0.07	0	0.20	0	3
Influenza.....	0.68	0.20	7.68	0.90	11.25	4.5
Colds.....	18.77	21.67	64.67	60.53	3.4	2.8
Tonsillitis....	0.34	1.81	2.22	6.87	6.5	3.77
Total.....	19.79	23.82	74.57	68.83	3.77	2.89

As one can readily see from the tables the winter of 1930-31 was a less favourable one from the standpoint of acute respiratory disease than the preceding one had been. As in 1929-30 there were not enough cases of the more severe infections for any conclusions to be drawn. One case of pneumonia occurred in the unvaccinated group; the subject was a man of sixty and the disease proved fatal on the fifth day. One case of bronchitis also occurred in the unvaccinated group. The common cold was once more the cause of over 80 per cent of the absenteeism studied. In this instance, as before, the number of absences from this cause was proportionately less among the group who had submitted to vaccination, but the average duration of lost time per case was somewhat longer, so that the vaccinated group actually lost about 6 per cent more time per 100 people than the control did. The experience in the case of tonsillitis was favourable throughout to the vaccinated group.

*Untoward results.*—No infections occurred in the 2,382 individual injections given in the three years. Almost 10 per cent of the people inoculated gave brisk local and general reactions marked by erythema about the site of

mediately after the second injection. Fortunately they cleared up in a few days. In the second series a young man with no previous rheumatic history developed an arthritis of the ankle from which he lost nine days. It may be pointed out that if we take 300 or more normal people and do nothing whatever to them the chances are strong that within the next week or two some one of them will develop some illness, serious or otherwise. If they are all vaccinated of course the procedure is blamed.

In all, fifteen working days were lost as the results of reactions (including the young man mentioned above); these were all lost in November, 1929, (second series). At least three people have come to me complaining that they have never been free from the symptoms of a cold in the head up to four months after the time of the injections. These people were, of course, quite justifiably dissatisfied with the whole procedure. On the other hand large numbers of the subjects felt that they were definitely benefited and requested the continuation of the work.

Several previous attempts have been made, especially by workers in the field of industrial



hygiene, to evaluate the action of stock vaccines in the prevention of acute respiratory disorders. In some instances the records of vaccinated people are compared with those of unvaccinated ones over a given period, and in others the records of various individuals before and after vaccination are compared. The latter method of comparison is open to serious error on account of the wide variation in the incidence of these disorders from year to year.

An exceptionally thorough and complete investigation along the above lines was done by Von Sholly and Park<sup>1</sup> working with the head-office staff of the Metropolitan Life Insurance Company in New York. Like ours, their results were scarcely conclusive, but whereas the uninoculated group lost 2.2 days per person over a period of six months, those who had submitted to the inoculation lost only 1.59 days per person in the same interval.

Rush<sup>2</sup> concludes that only one-half of those inoculated with a stock vaccine against the common cold will report beneficial results, while in something less than one-third the vaccine is of doubtful value. In the remainder, about one-fifth, definitely negative results may be expected. He feels that it is impossible to prognosticate the value of cold vaccine to any individual by an examination of that person's nose and throat. Repplier and Leaman,<sup>3</sup> of the Curtis Publishing Company in Philadelphia, conducted an accurate follow-up of 125 persons inoculated with a stock vaccine. They found that the procedure was a complete success in 30.4 per cent of the series, partially successful in another 52.8 per cent, and a failure in the rest. Jordan,<sup>4</sup> points to the many contradictory results in the attempts at prevention by inoculation and concludes that vaccination is a "weak reed to lean upon". Ferguson<sup>5</sup> is of the opinion that the available evidence suggests very strongly that it is futile to hope for a reduction in the incidence of common colds among the population at large as the result of the prophylactic inoculation of any of the stock vaccines now available.

Kolmer<sup>6</sup> thinks that about 60 per cent of persons who are especially susceptible to "head-colds", and who undergo preventive inoculation enjoy a freedom from these troubles for a period of four to eight months. Adams,<sup>7</sup> of Baton Rouge, gave 382 people prophylactic vaccine: 68 per cent were benefited; 30 per cent of the

vaccinated group and 49 per cent of the unvaccinated group lost time. Those who had less than four doses showed no effect. Walker,<sup>8</sup> of Boston, inoculated 90 people, some of whom suffered from colds with asthma. He found that 59 per cent benefited for a year or longer; 16 per cent needed vaccination more often than once a year. Later the same author<sup>9</sup> used a vaccine made from cultures of the variety of streptococci most commonly found at the time. He found it efficacious in the treatment of colds, but not in their prevention. Janney<sup>10</sup> inoculated a small group of children in an institution in Milwaukee. The procedure seemed to be of no value whatever among the children under three years of age, but among the older subjects those inoculated had only about two-thirds as many days with respiratory infections as the control group did. Murray<sup>11</sup> after two years' experience with inoculation of groups of employees at the Dennison Manufacturing Company concludes that stock catarrhal vaccines are uncertain in their results. They seem to be helpful to about 50 per cent of the people taking them, and this fact makes the treatment in industry economically sound. Their limitations, however, should be definitely explained when the procedure is offered.

#### SUMMARY AND CONCLUSIONS

After preliminary trials a large group of Montreal factory employees were given inoculations over a period of two years with stock vaccines designed to prevent the occurrence of acute respiratory disorders. Care was taken to select those people who had had a bad record of trouble from these disorders. Over a period of four months careful records were kept of the time these people lost from pneumonia, bronchitis, influenza, colds and tonsillitis, and their record was compared with that of a control group consisting of all the other employees in the factory. In 1929-30 considerable improvement was observed in the record of the vaccinated group; in 1930-31, although there were fewer absences among the vaccinated group, the number of days lost per 100 in this group was slightly greater than in the control group.

A few irritating but no serious reactions or results occurred. Most of those inoculated seemed to feel that they had been benefited.

It is perfectly clear that the stock vaccines used cannot in any sense be considered a sure and specific preventive of acute respiratory disorders in the dosage we used. That they do benefit a large percentage of people is apparent from the fact that the absenteeism of a group of people who are habitual sufferers from respiratory troubles can be reduced to a point below that of a control group. There are apparently

a good many individuals on whom the vaccine has no effect whatever.

## REFERENCES

1. VON SHOLLY AND PARK, *J. Immunology*, 1921, 6: 103.
2. RUSH, *Nation's Health*, 1927, 9: 18.
3. REPPLIER AND LEAMAN, JR., *J. Ind. Hygiene*, 1927, 9: 85.
4. JORDAN, *J. Am. M. Ass.*, 1927, 89: 1779.
5. FERGUSON, DAVEY AND TOPLEY, *J. Hygiene*, 1927, 26: 98.
6. KOLMER, *Arch. Pediat.*, 1929, 46: 14.
7. ADAMS, *South. Med. J.*, 1929, 22: 354.
8. WALKER, *Arch. Int. Med.*, 1929, 43: 429.
9. WALKER, *Am. J. M. Sc.*, 1929, 178: 645.
10. JANNEY, *Wisconsin Med. J.*, 1930, 29: 205.
11. MURRAY, *New Eng. J. Med.*, 1930, 203: 727.

## VITAMIN "A" AND THE COMMON COLD\*

By H. P. WRIGHT, M.D., F.R.C.P. (CAN.), JOHN B. FROSST, PH.G., F. PUCHEL, PH.G., AND  
MARGARET R. LAWRENCE, R.N.,

Montreal

The Libyans, when their children come to the age of four years, burn the veins at the top of their heads; others burn the veins about the temples. This they do to prevent them from being plagued in their after lives by a flow of rheum from the head, and such they declare is the reason they are so much more healthy than other men.—Herodotus, Lib. IV, Cap. 187.

JONATHAN WRIGHT,<sup>1</sup> in a delightful historical paper presented before the American Laryngological Society in 1901, definitely established that the common cold has long been a source of annoyance and trouble to the human race. He says in part, "In fact, Darwin gives us good ground for believing that we might pursue the subject even further back into the pedigree of our simian ancestry, for he says (Descent of Man) that monkeys are not infrequently afflicted with it in their native arboreal habitat."

This common scourge does not appear formidable but, even in our so-called scientific day, it has to be admitted that our real knowledge of it is scanty, and our treatment insignificant. An awakening interest in this widespread affliction is encouraging and has persuaded us to report some studies made during the past few months. By the common cold we mean "rhinopharyngitis" with frequent complicating otitis media.

One of us has been regularly in charge of a service at the Montreal Foundling and Baby Hospital during the past ten years. Epidemics of the so-called common cold have swept through

this institution at least twice each year during the six months' service, as a rule some time in the late autumn and again in the early spring. These epidemics have been co-incident with community infections outside the hospital.

Since 1925 various studies have been made with vaccine, ultraviolet ray and codliver oil. Our results with these several forms of therapy, have been so uniformly unsuccessful that it has not been thought worth while to make any publication. Recent published work on vitamin A re-stimulated our interest in this subject. Wolbach and Howe<sup>2</sup> reported tissue changes in white rats following deprivation of vitamin A, consisting of substitution of stratified keratinizing epithelium for the normal epithelium in various parts of the respiratory tract, alimentary tract, eyes, para-ocular glands, and genito-urinary tract. In general, the changes appeared first in the respiratory mucosa, in the nares, trachea and bronchi, then in the salivary tract, then in the para-ocular glands and pancreas. Turner<sup>3</sup> states that 85 per cent of 29 xerophthalmic animals studied had infections with localization of pus in either nasal cavities or in the middle ear. Green and Mellanby<sup>4</sup> state that of 45 rats which died from vitamin A deficiency, only one was found in which no infective focus could be demonstrated. Lassen<sup>5</sup> proved that when normal young rats were fed on vitamin A free diet, and if, after development of pronounced xerophthalmic symptoms, they were inoculated by the mouth and by subcutaneous injection with live paratyphoid bacilli, the course of infection and bacteriological autopsy

\* Read at the annual meeting of the Canadian Society for the Study of Diseases of Children, (collaborators by invitation), June 5, 1931, Lucerne-in-Quebec.



finding showed a marked decrease in the resistance of these animals to this infection as compared with the findings in rats on adequate diet. Mellanby<sup>6</sup> reviewing the subject on March 13, 1931, in the Hastings popular lecture stated:

"The experimental facts can be described in a few words. If young rats are placed on diets, complete, so far as we know, except for vitamin A, they all die within a few months with multiple infective lesions affecting different parts of the body, most commonly the eyes, the ears, the lungs, the nasal sinuses, and the genito-urinary tract, but abscesses may be found almost anywhere. If a small quantity of vitamin A be given, cure follows rapidly if infection has not proceeded too far. Carotene, a pigment in green vegetables and carrots, acts in the same way as vitamin A, and it appears that physiologically, but not chemically, these substances are identical. Carotene is, in fact, the form in which vitamin A occurs in vegetable life, and is probably the precursor of vitamin A as found in animal life.

"The infective lesions associated with deficiency of vitamin A have the characteristics (1) that they apparently begin in mucous membrane and epithelium, and (2) that they are of a subacute or chronic type. Before taking a general survey of diseases of infection with a view to trying to see those in which vitamin A deficiency

plays a part, I shall mention some of the conditions in which this substance has been tested clinically or as a therapeutic agent, in no case, however, on a scale sufficiently large to allow certain deductions to be made.

"My colleague Green and I have treated cases of puerperal septicæmia with diets rich in protective substances, and especially rich in vitamin A and D. The result so far obtained in 19 cases are promising, but not conclusive, the mortality being about 28 per cent, as compared with the usual mortality rate of 80 per cent. We have also tested the value of vitamin A as a prophylactic agent in puerperal sepsis, alternate women at an antenatal clinic in Sheffield being given "radiostoleum," a preparation rich in vitamin A and D. Up to the present only about 200 of vitamin A treated women and 200 control cases have been tabulated, but the results are definitely more favourable in the vitamin A cases. A preliminary description of these investigations was mentioned in the Proceedings of the Public Health Congress of 1930, and will be published shortly. On the basis of the animal experiments favourable results should be expected to ensue from vitamin A therapy in puerperal sepsis, since the disease is an infection of a mucous membrane, and is therefore, more comparable with the animal experiments than puerperal septicæmia.

"Vitamin A as a therapeutic agent has also been tested by Donaldson at the Crown Gold Mines in Johannesburg. He gave vitamin A, either in the form of radiostoleum or mammalian liver to 200 cases of

TABLE I.

## APPROXIMATIONS TO VITAMIN A CONTENTS OF FOODS

Food	Units of Vitamin A* (approximate)	
	Per Pound	Per Ounce
Apple, raw (one test) . . . . .	250	16
Bacon . . . . .	125 (?)	8 (?)
Banana . . . . .	1,600 (?)	100 (?)
Beans, canned baked . . . . .	250	16
Beans, green string, fresh . . . . .	1,600	100
Beef, raw, clear lean . . . . .	250	16
Beef, fat . . . . .	2500 (?)	150 (?)
Beets . . . . .	80	5
Butter . . . . .	8,000 to 22,000	500 to 1,400
Cabbage, new, raw or cooked . . . . .	270	18
Cabbage, old (one test) . . . . .	90	6
Carrots . . . . .	10,000 to 30,000	600 to 2,000
Cauliflower . . . . .	270	18
Celery, bleached stems . . . . .	Too little to be measured by present methods	
Celery, bleached leaves . . . . .	about 1,000	about 65
Celery, green leaves . . . . .	about 3,000	about 200
Cheese, hard (one test) . . . . .	about 10,000	about 600
Codfish (muscle) . . . . .	Too little to be measured by present methods	
Cod-liver oil . . . . .	80,000 or more	500 or more
Eggs . . . . .	about 9,000	about 550
Egg yolk . . . . .	about 27,000	about 1,700
Egg white . . . . .	Too little to be measured by present methods	
Flour, white . . . . .	Too little to be measured by present methods	
Grapes . . . . .	250 to 350	1,622
Lemon juice . . . . .	about 50	about 3
Lettuce . . . . .	750 to 3,000	50 to 200
Milk (whole) . . . . .	about 1,000	about 65
Milk, whole dried . . . . .	about 7,500	about 500
Oatmeal or rolled oats . . . . .	Too little to be measured by present methods	
Olive oil . . . . .	about 200	about 13
Orange juice . . . . .	about 350	about 20
Peas, green . . . . .	2,500 to 3,500	150 to 200
Pork (roast cut, raw) . . . . .	about 96	about 6
Potatoes, baked . . . . .	about 130	about 8
Sweet potatoes, yellow . . . . .	about 3,000	about 200
Spinach, fresh . . . . .	about 25,000	about 1,500
Tomato, raw or canned . . . . .	2,700	1,700
Turnip . . . . .	25 to 150	1.5 to 10
Wheat . . . . .	Too little to be measured by present methods	

pneumonia and used 100 cases as control. The mortality rate among the control cases was 13 per cent, and that of the vitamin A treated cases 8 per cent. It appears as if the vitamin A therapy had been to some extent effective, but the results are not dramatic.

On the basis of our experimental work extensive clinical trials on the prophylactic effect of vitamin A on such infections as the common cold, sore throat, etc., are now being made by the Medical Research Council. My own experience suggests that diet will not prevent the common cold completely, but that it will reduce the incidence of the infection and shorten the period of convalescence by limiting the spread of bacterial infection down the bronchi and so reducing or eliminating the coughing stage.

"It is clear that vitamin A as a therapeutic agent in acute infective conditions like pneumonia is limited in its effect. As a prophylactic agent against infection, and especially against chronic infection, it seems to me probable that it will be much more effective. Certainly, animals on a vitamin A deficiency diet develop bronchopneumonia much more readily than those receiving this substance in abundance. On the other hand, I have seen a child develop a very severe throat infection, followed by acute middle-ear disease, when taking a diet containing a fair amount of vitamin A."

All these workers emphasize the fact that deficiency of vitamin A was present. As the word implies, deficiency may be a matter of degree. Failure to grow and xerophthalmia may be the last result of deficiency of vitamin A, but what, one naturally asks oneself, is the first manifestation? May it be the frequent occurrence of the common cold?

Vitamin A is present in many of our foodstuffs, particularly those associated with yellow pigment. Table I gives the approximate value of vitamin A in different foodstuffs.

Charles E. Frosst & Company of Montreal carried out the following experiments on albino rats to ensure that our experimental infants received an adequate supply of vitamin A.

Concentrated liquid extract was prepared from lamb's liver, with a view to giving 16,000 U.S.P. vitamin A units in each daily dose. The only means of rapidly determining the approximate number of units without delaying clinical experiments was to make colorimetric tests, which were carried out in the following manner. A solution of the concentrate in absolute chloroform was made. This concentrate was adjusted to produce a reading within a blue colour range of 2-6, which can be easily read. One-fifth c.c. of this solution was placed in the cell of a tintometer. To this was added 2 c.c. of antimony trichloride reagent. The blue unit reading was recorded immediately.

It is well known that the same factor cannot be used for all substances in transferring the blue unit reading to a bio-unit reading; it was, therefore, necessary to estimate this factor. The lowest recorded factor which we could find was 5 and, therefore, for every blue unit we conservatively estimated that the concentrated fluid extract contained 5 U.S.P. vitamin A bio-units.

Eventual bio-assay results showed our estimate to be conservative, and that the concentrated fluid extract contained at least three times more bio-assay units than expected. The bio-assays were carried out in conformity with the requirements of the U.S.P. vitamin A assay

for cod liver oil. This assay is based upon the estimation of the minimum amount of a preparation necessary to meet specific growth-promoting requirements in a standard test animal. The test animals were albino rats from a constant source and bred under the control of the experimenter. The vitamin A potency is expressed in units per gram of preparation, the unit being the minimum daily amount required to cure induced symptoms of vitamin A starvation in young albino rats, and to cause a gain in weight of from 10 to 20 grams within a period of 35 days under the conditions of growth and diet specified.

Rats not less than 25 days and not more than 29 days old, weighing not less than 35 grams and not more than 45 grams were placed on a vitamin A free diet. This basal diet was as follows.

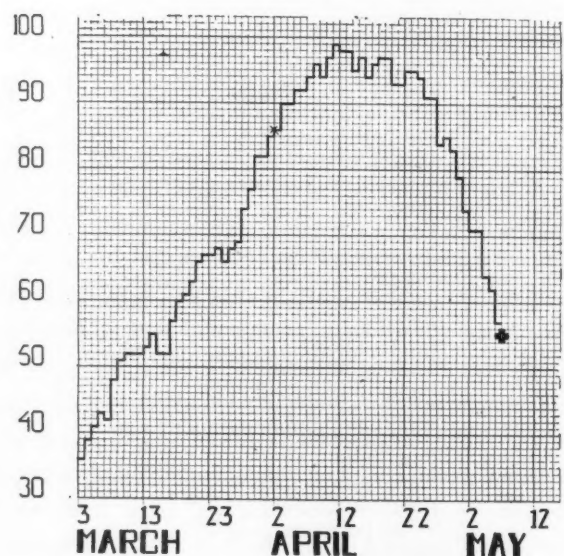
Casein, free from vitamin A, 18 per cent; salt mixture (such as that of Osborne and Mendel, 4 per cent; starch sufficient to make, 100 per cent. Sufficient dried brewer's yeast was used to meet the vitamin B requirements of the animal, mixing it with the basal diet during the vitamin A free period.

The rats began receiving the preparation to be estimated after not less than 7 days of stationary or declining weight and from the time of feeding the test preparation were kept in separate cages. The test period continued for 35 days, and the potency of the oil was judged from the rat or rats showing a gain on the 35th day of between 10 to 20 grams over the weight at the beginning of the tests, and the cure of the induced symptoms of vitamin A starvation. Each test was controlled by standard rats which received none of the vitamin A preparation. This concentrated fluid extract of lamb's liver contained very little or no vitamin D.<sup>8,9</sup>

The following charts illustrate the results obtained with the concentrated fluid extract of lamb's liver. The spaces between the heavy vertical lines represent 10 days and are subdivided into single days by lighter lines. The spaces between the heavy horizontal lines represent 10 grams of body weight, and are subdivided into single grams by lighter lines.

The infants in our experiment were all under two years of age, the youngest being six weeks and the eldest two years. The average age was

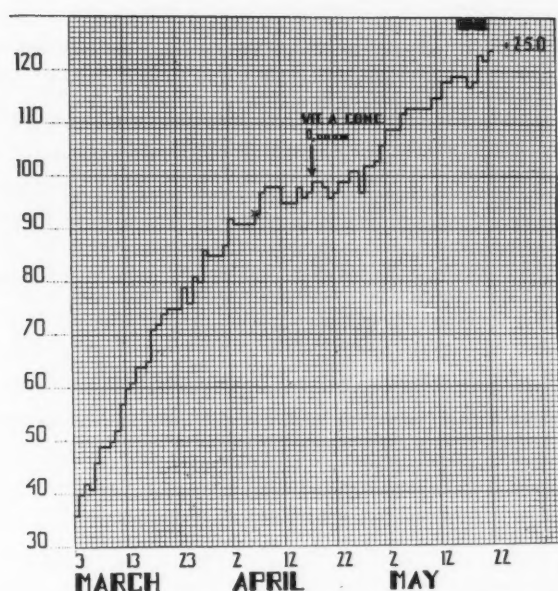
CHART I



Rat No. 1220 R, on standard diet USP.X. Control, no vitamin A. Control animal which died on basal diet. X represents onset of xerophthalmia. + represents death.

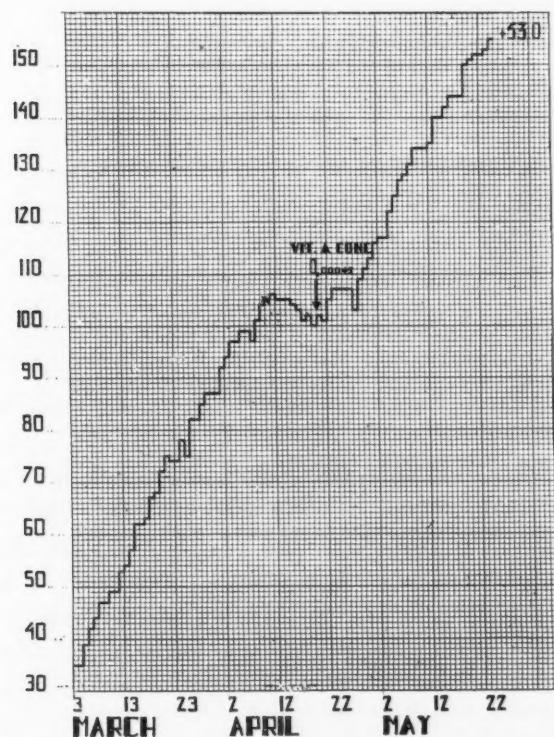


CHART II



Rat No. 1218 R, on basal diet (standard diet USP.X.) and minimum vitamin A concentrate, to cause growth, and cure xerophthalmia. X represents onset of xerophthalmia.

CHART III



Rat. No. 1204 N, on basal diet (standard diet USP.X.) and three times the quantity of vitamin A concentrate that was fed to the animal represented by Chart II. X represents onset of xerophthalmia.

nine months. Modified boiled whole milk was fed to 20 vitamin A concentrate and 40 control cases, and increases made rapidly up to 30 ounces per day. Between the age of 4 and 5 months cereals and soup were fed to the infants;

generally by the time they had reached the age of six months one yolk of egg was taken daily. In addition, they all received daily one dessert-spoonful of a biologically tested cod liver oil, and one ounce of orange juice. The vitamin A value of this diet is considerable.

The experimental group in addition to the above was fed vitamin A concentrate, as outlined in Table II. The final dose contained approximately 125 times the estimate required to promote growth and protect against xeroph-

TABLE II.

NUMBER OF VITAMIN A BIO-ASSAY UNITS CONTAINED IN EACH DOSE OF THE CONCENTRATE WHICH WAS FED TO THE INFANTS

Date	Dosage	Vitamin A, Bio-Units Per Dose
November 23 to December 9, 1930	2 fluid drachms	Indefinite, thought to vary from 9,000 to 15,000
December 10 to December 15, 1930	1 fluid drachm	10,500
December 16 to January 16, 1931	2 fluid drachms	21,000
January 17 to February 4, 1931	1 fluid drachm	21,000
February 5 to April 7, 1931	1 fluid drachm	42,000

thalmia. It seems reasonable to assume that if vitamin A has an anti-infective action for the common cold that the experimental group was protected.

Tables 3 and 4 and Charts IV and V represent an attempt to summarize our results.

TABLE III.

RESULTS OF FEEDING VITAMIN "A" IN LARGE AMOUNTS TO INFANTS UNDER TWO YEARS OF AGE AT THE MONTREAL FOUNDLING AND BABY HOSPITAL

Number of cases on Vitamin "A" concentrate.....	20
Number of Control cases.....	40
Vitamin "A" concentrate commenced November 28th, 1930.	

Upper Respiratory Infection, January, 1931.

Vitamin "A" group incidence of 85%  
Control group incidence of 82.5%

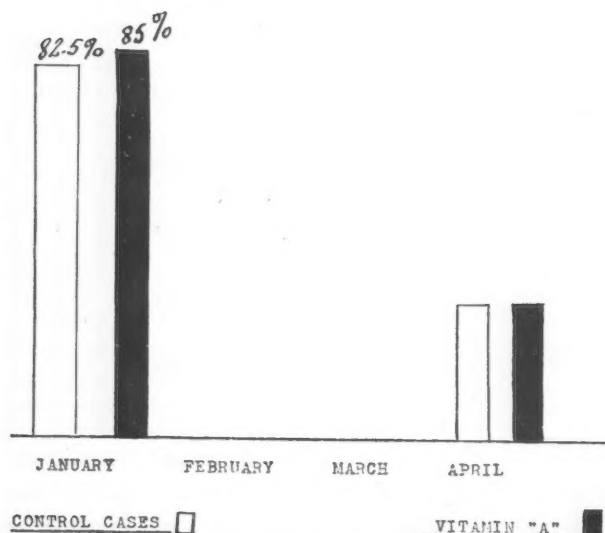
Upper Respiratory Infection, April, 1931.

Vitamin "A" group incidence of 30%  
Control group incidence of 30%

TABLE IV.  
OTITIS MEDIA

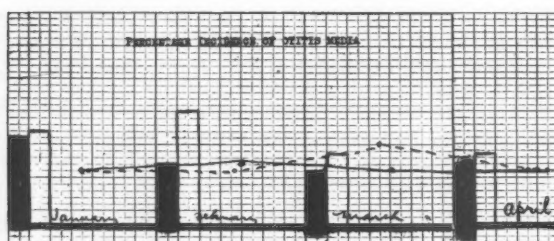
Number of cases on Vitamin "A" concentrate.....	20
Number of control cases .....	40
January.	Days
Vitamin "A" 3 cases out of 20, average discharge,	13
Control 6 cases out of 40, average discharge,	13.9
February.	
Vitamin "A" 3 cases out of 20, average discharge,	9
Control 7 cases out of 40, average discharge,	17
March.	
Vitamin "A" 4 cases out of 20, average discharge,	8
Control 5 cases out of 40, average discharge,	10.4
April.	
Vitamin "A" 3 cases out of 20, average discharge,	9
Control 6 cases out of 40, average discharge,	10.3

CHART IV  
UPPER RESPIRATORY INFECTION



In January, one case which was on vitamin "A" concentrate died from pneumonia. In April, two cases of pneumonia occurred in the control group; one died; one recovered. Two cases of mastoiditis required operation in the control group.

CHART V



Vitamin A = ----- . Control = ----- .  
Columns = average discharge: vitamin A shaded; control blank.

A large number of infants in both groups were infected in January. All infants in the institution normally receive daily one dessert-spoonful of a biologically tested cod liver oil, therefore, the control group should not have had more protection in January than in April. It is assumed that some undetermined bacteriological factor was responsible for the lower incidence to respiratory infection in April.

#### COMMENT

Any deficiency disease implies a lowered resistance, and records are available to show that in scurvy and rickets infections are prone to occur. On the other hand, over supply of accessory food factors "A", "C" and "D" does not seem to protect against rhino-pharyngitis. If such was the case, tanned and healthy Canadian holiday makers, who have been liberally supplied with fresh fruits and vegetables, should not within a week or two of their return to the city develop acute attacks of rhino-pharyngitis—a common experience with the majority, and observed frequently by one of us.

#### SUMMARY

Twenty infants were supplied over a period of months with large amounts of vitamin A.

Forty infants under exactly similar circumstances were supplied with the amount of vitamin A usually given to normal infants.

No appreciable difference was found in the incidence to upper respiratory infection in the two groups.

Therefore, it is concluded that vitamin A in excessive amounts does not protect infants against respiratory infection.

#### REFERENCES

1. WRIGHT, *Trans. Am. Laryng. Soc.*, New York, 1901, 74: 58.
2. WOLBACH AND HOWE, *Exper. Med.*, 1925, 42: 753.
3. TURNER, *Proc. Soc. Exper. Biol. & Med.*, 1928, 26: 233.
4. GREEN AND MELLANBY, *Brit. M. J.*, 1928, 2: 691.
5. LASSEN, *The Hour of Hygiene*, 1930, 30: 3.
6. MELLANBY, *Brit. M. J.*, 1931, 1: 1387.
7. SHERMAN, *Chemistry of Food and Nutrition*, 3rd edition Macmillan, p. 458.
8. ROSENHEIM AND WEBSTER, *Nature*, 1927, 120: 440.
9. ROSENHEIM, *Bio. Jour.*, 1929, 23: 47.
10. WRIGHT, GEDDES AND VICK, *Am. J. Dis. Child.*, 1930, 40: 927.



NOTES ON NEW CASES OF *B. DYSENTERIÆ SONNE* INFECTION\*

BY MARION M. JOHNSTON AND ALAN BROWN, M.B.,

Toronto

TWENTY strains of *B. dysenteriae Sonne* were isolated from the stools of 175 infants and children who were admitted to the Hospital for Sick Children during a period from October, 1928, to June 1930. The symptoms presented by these children were usually diagnosed clinically as acute intestinal intoxication, infectious or fermentative diarrhoea, or dysentery. In addition two strains were obtained from infants suffering with pyelitis. The clinical data relative to the cases from whom these strains were cultivated and the biological and serological reactions of the strains have been reported<sup>1,2</sup>. It is the purpose of this communication to present in brief form relevant data regarding the source of 30 additional strains isolated since June 1930, together with certain facts concerning the clinical manifestations occasioned by infection with *B. dysenteriae Sonne*.

The stools of 68 infants who were admitted to the Hospital for Sick Children yielded 11 strains of *B. dysenteriae Sonne*. The symptom complex was diagnosed as acute intestinal intoxication in 53 out of the 68 instances. Miscellaneous diagnoses applied to the remaining 15 cases included such designations for the clinical conditions as infectious diarrhoea, fermentative diarrhoea, and dysentery. One strain was recovered during postmortem examination from the colon of a fatal case of acute intestinal intoxication in an infant. One strain was found in the stool of an infant brought to the hospital's outdoor department with a complaint of diarrhoea which was not sufficiently serious in nature to warrant hospitalization. One strain was cultured from the stool of a contact of an infant suffering with acute intestinal intoxication who died after admission to the hospital. One strain was obtained in the faeces of a female infant suffering with pyelitis. A catheter urine specimen from one female child aged 2½ years, who was admitted with a provisional diagnosis of pyelitis, yielded one strain. From the stools of 30 children between the ages of two and about

eight years, 11 strains were isolated. One strain was given to us by Dr. A. McNabb, Director of Laboratories, Ontario Department of Health. This strain was cultivated from a faecal specimen sent in to the laboratory indicated from a small town in Ontario, the patient being a girl about six years of age who was suffering with severe diarrhoea. Two strains were obtained from stool specimens from two adults who had severe diarrhoea. Thus a total of 30 strains was obtained from the various sources enumerated, 28 being isolated from stool specimens, 1 from the colon at post-mortem examination, and 1 from a catheter urine specimen.

The 68 infants were admitted to the hospital in August, September and October, 1930. One of the children over two years of age from whom *B. dysenteriae Sonne* was isolated was admitted in July, 3 in October, 4 in November, 2 in December, 1 in February 1931. The culture from the case outside the city was examined in January 1931. One adult had severe diarrhoea in October, 1930, when the strain was isolated, the other in February, 1931, at which time her whole family suffered from the same complaint. The infant, whose symptoms were diagnosed as pyelitis and whose stool culture contained the Sonne bacillus was admitted during the epidemic diarrhoea period, while in January, 1931, the faeces of the pyelitis case over two years of age yielded this species of microorganism. While infections attributed to the Sonne dysentery bacillus are more numerous during the epidemic diarrhoea season, the fact that strains of *B. dysenteriae Sonne* have been isolated from persons suffering with gastrointestinal disturbances during the colder months of the year indicates that dysentery produced by this species of microorganism is endemic as well as epidemic.

Some infants experienced an acute onset of clinical symptoms, while others were ill as long as five weeks before their condition became sufficiently serious to warrant admission to the hospital. In the group of children over two years of age from whom the Sonne bacillus was isolated the onset was sudden, with illness continuing

\*From the Research Laboratories of the Sub-Department of Paediatrics, University of Toronto, and the Hospital for Sick Children, Toronto.

less than twenty-four hours in the majority of these cases.

The clinical symptoms of the 68 infants under two years of age from whom these strains were obtained were diagnosed on admission usually as acute intestinal intoxication or infectious diarrhoea. Amongst the 30 children aged from two to about eight years the symptom complex led to various diagnoses. In one case a diagnosis of dysentery was given. Convulsions were evidenced at the onset in four cases which formed the basis for provisional diagnoses on admission of convulsions of unknown origin in three cases, and convulsions with dysentery as the probable cause in the fourth case. A diagnosis of lobar pneumonia was made in two cases. Abdominal pain led to a provisional diagnosis of appendicitis in one case, of pyelitis in the other. Convulsions accompanied the symptoms in the pyelitis case over two years of age. Diarrhoea and vomiting were symptoms characteristic of all the infant infections, while diarrhoea occurred without vomiting in three and vomiting with no diarrhoea in five children over two years of age. The adults suffered with diarrhoea only. Neither vomiting nor diarrhoea was recorded in the histories of the pyelitis case over two years of age. High fever was manifested by the infants, little fever by some older children, and none by the adults. One adult experienced pain.

The number of stools passed by the infants varied from 5 to 15 per day, while in the older children and adults in whom diarrhoea was a symptom the variation was from 5 to 7 per day. Diarrhoea usually abated rapidly in infections in children over two years of age: their stools were restored to normal in number and consistence within two to eight days from the onset of symptoms, whereas diarrhoea persisted a week or ten days or even as long as six weeks in infant Sonne infections. One adult had diarrhoea intermittently for about 10 days. Blood and pus accompanied the diarrhoea in 14 of the 30 cases from whom Sonne strains were cultured. When several observations were carried out it was found that the Sonne bacilli disappeared from the stools before they became normal in number and consistence. In three patients whose stools were examined bacteriologically several times these bacilli were not found on the average in about ten days after the first isolation. In other cases these microorganisms persisted after diarrhoea

had entirely ceased; one child excreted the Sonne bacilli after his stools were normal in number.

One boy four years of age gained his infection from the boy in the next bed who was suffering from *B. dysenteriae* Sonne infection. These bacilli were isolated from the stool of the latter child and were agglutinated by his serum. The symptoms of the secondary case commenced after a four day incubation period and had subsided completely three days later.

Three of the infants under two years of age died. All children over two years of age, as well as the adults, recovered, although one girl in the group of cases over two years of age was critically ill for several days. Her illness began suddenly ten days before admission and she was in hospital for more than a month.

The sera of 7 cases agglutinated their homologous cultures, one in a dilution of 1:40, 4 in 1:320, 1 in 1:640, 1 in 1:1280. Three sera were negative.

#### SUMMARY

*B. dysenteriae* Sonne appears to be the etiological factor in gastro-intestinal disturbances during the epidemic diarrhoea season as well as during colder months of the year. Infections were especially numerous and serious amongst infants under two years of age; they also occurred in children over that age limit, and in adults. The infant cases were severe with sudden onset or were mild when the infection commenced but became more serious due to prolonged diarrhoea and vomiting and consequent dehydration and toxæmia. Children over two years of age experienced an acute onset of symptoms which usually terminated in a comparatively short period of time.

Uniformity of clinical symptoms presented by infants did not hold for children more than two years of age, as diarrhoea or vomiting were entirely wanting and pain or convulsions or fever were the outstanding early clinical manifestations. That this bacillus was probably the cause of infections which produced a higher mortality amongst infants under two years of age is shown by the fact that three children in that age group died, while all cases over two years of age recovered.

#### BIBLIOGRAPHY

1. JOHNSTON AND BROWN, *Canad. Pub. Health J.*, 1930, 21: 395.
2. JOHNSTON AND BROWN, *Canad. M. Ass. J.*, 1930, 23: 231.



## SOME CLINICAL ASPECTS OF DISPROPORTION IN OBSTETRICS\*

By L. C. CONN, M.D., F.R.C.S. (CAN.), F.A.C.S.

*Professor of Obstetrics and Gynaecology, University of Alberta,  
Edmonton*

THE problem of disproportion is always with us in the practice of obstetrics and turns up at most unexpected times. In many cases the pelvic measurements will be within normal limits or only slightly below them. Perhaps one would be fairly accurate in stating that almost 80 per cent of the cases of disproportion would come from this class. This is a surprising condition of affairs, and if the above statement is true it necessarily follows that we must consider every obstetrical case as a possible case of disproportion. Consequently, we should be on our guard at all times. Many of these cases are not recognized owing to lack of careful prenatal care. We know that the fetal head sinks into the pelvis at the beginning of the last month of pregnancy in primiparæ and at the beginning of the last two weeks in multiparæ. If the head does not sink into the pelvis at this time, we should carefully look for the cause of this irregularity. In primiparæ the fetus has reached the diaphragm at the end of the eighth calendar month. As the fetus cannot grow any higher it usually sinks into the pelvis unless there is disproportion, malpresentation, or a relaxed abdominal wall. One should be able to rule out malpresentation and a relaxed abdominal wall. The next step is to test out the size of the fetal head as compared with the size of the mother's pelvis.

We have several ways of considering this problem. There is the Mueller manoeuvre which is mentioned in most text-books. One inserts one or two fingers in the vagina of the patient and then attempts to push down the fetal head with the other hand. If the head enters the pelvis readily then one is sure that disproportion is not present at this time. There is also the Hillas impression method, whereby one presses on the fundus of the uterus with one hand, while with the index finger of the other hand in the

rectum one tries to estimate the size of the head. If the head can be pushed down to the spines of the ischium no great disproportion is present.

J. Leon Jona, of Melbourne, Australia, has another impression method which is very useful and which I have used successfully in some cases. With the patient lying flat on her back on a firm couch and the examiner standing at her side, the fetal head is palpated, and the tips of the index and middle fingers of one hand are applied firmly at the sinciput and the tips of the corresponding fingers of the other hand firmly to the occiput. The patient is then assisted by the nurse to sit up, when the head can be felt to enter the brim, if normal conditions appertain, sliding past the examining fingers. When the patient is assisted to lie down again, the head slides back into place. It is very interesting to note in cases of deflexion of the head how the head, in borderline cases, will not enter the brim, whereas, when proper flexion has been restored by manoeuvre, the head readily enters. If the head enters the brim, have the patient come back in one week and repeat this manoeuvre. If the head will not enter one may consider giving the patient an anæsthetic in order to get complete relaxation. Thus, one is enabled to come to a decision as to whether one should induce labour ahead of time or not. Of course, the same procedure may be applied to multiparæ. The careful watching of the size of the fetal head as compared with the size of the mother's pelvis is absolutely necessary if one is going to obtain early information about these cases.

I am not going to say much about pelvic measurements because, as I have stated before, many of the cases will not show any marked variation. If, however, the measurements are down, then one can get a very accurate idea of the extent of this by using the excellent method developed by Thom in the use of the x-ray for purposes of measurement. By this method ac-

\* A paper read on June 26, 1931, at the sixty-second annual meeting of the Canadian Medical Association, Vancouver.



curate figures can be obtained of the conjugata vera, and the transverse and oblique diameters of the inlet of the pelvis.

Is it possible to obtain any idea of the size and development of the fetus? This is a little difficult, but one can make an attempt to measure the length of the fetus by the Ahlfeld manœuvre. The mature fetus measures from 48.0 to 52.0 cm. in length. One tip of the pelvimeter is placed upon the symphysis within the genital crease, and the soft parts lifted up until the tip rests on the upper border of the bone. The other tip is placed upon the upper pole of the child. From the measurement thus obtained deduct 2.0 cm. for the thickness of the abdominal wall and multiply by two. The product is the length of the fetus.

The Perret manœuvre may tell us something about the size of the fetal head. By deep pressure on the inlet locate the occipitofrontal poles of the head. Both hands are required for this. An assistant measures the distance between the fingers with a pelvimeter and the result, without deduction for the thickness of the abdominal wall, is the occipitofrontal diameter. The biparietal is estimated from the occipitofrontal by O'Keefe's formula which is occipitofrontal plus seven, divided by two, equals biparietal. Thus

$$\frac{11.0 \text{ cm. occipitofrontal} + 7}{2} = 9 \text{ cm.}$$

Also, an accurate idea of the size of the head of the fetus may be obtained by the Thom technique of x-ray measurement.

After labour begins there are several points to be borne in mind. If there is a snug fit between the head of the fetus and the pelvis of the mother the fetal head will not go into the pelvis until the cervix is fully dilated. This is due to the fact that the thickness of the cervix itself may prevent the head from entering. When the cervix is fully dilated it ascends higher in the pelvis and thus allows the head to enter. We must also remember that there will be no rotation of the fetal head until the cervix is fully dilated and the head strikes the pelvic floor.

It is very important to be able to watch the progress of dilatation of the cervix, because if it dilates evenly there is not likely to be any great disproportion present. If, however, after the cervix has dilated up to three or four fingers in diameter, and if then, when a pain is present, the membranes project through the

cervix and down into the vagina for an inch or more, this means, as a rule, marked disproportion and we may have to consider the question of a Cæsarean section. The membranes normally fill the cervix and have a gentle convexity to the lowest part of the cervix. At any rate this case will have to be watched very carefully. One can watch the progress of dilatation of the cervix quite well by means of rectal examinations. During the stage of dilatation, sodium amytal, grains vi, by the mouth, followed later on, if necessary, by heroin, grain 1/12, hypodermically, will be found to give a great deal of relief and will prevent the patient from becoming exhausted. Up to the present time I have seen no ill effects from sodium amytal by the mouth.

Before a vaginal examination mereurochrome (4 per cent), is injected into the vagina. In cases of dry labour it is injected every four hours. If forceps have been used, or any manipulation done, mereurochrome is injected into the vagina every day for the first six days after delivery. I am well satisfied with this technique.

If the membranes rupture early in labour it is usually wise to do a rectal examination, in order to be sure that there is no prolapse of the cord or no compound presentation. In the case where the membranes rupture early an even dilatation of the cervix is a good sign. If the posterior lip is thinned out and the anterior lip is quite thick, this means, as a rule, that some disproportion is present. If, in addition, the anterior lip becomes markedly œdematous then one is absolutely sure that disproportion is present. Usually, one will find asynclitism present also and will have to be on the lookout for a parietal presentation. If the cervix dilates up to a certain distance, is at a standstill for some time, and then the vaginal part of the cervix seems to lengthen out, this is a bad sign, and most likely a Cæsarean section will have to be done. After the cervix is fully dilated, and when the uterine contractions are fairly close together and quite strong, the head should enter the brim of the pelvis. If this does not happen within two to four hours a Cæsarean section is indicated. Another condition that may be a danger sign is when moulding of the head takes place during the first stage of labour.

In all these cases, where the head does not readily enter the pelvis in the ordinary way and

at the usual time, one must be very careful about vaginal examinations on account of the possibility of having to do a section later on. If one will bear in mind these several points he will be less likely to apply forceps too early in labour or when, perhaps, forceps are not indicated at all but where some other method of delivery should be attempted.

One method is to bring on labour ahead of time if the fetus seems too large. According to some authorities the fetus increases almost 10 per cent per week during the last month. Thus two weeks may make some difference in the size of the baby.

I have been using for some years a modified Watson method for the induction of labour. A large dose of castor oil is given, at least two and one half ounces. When the bowels begin to move, 5 grains of quinine are given by the mouth and repeated in one hour. Also, pituitrin (m iii) is given every half hour, hypodermically, until five doses are given. As soon as the pains start a hot enema is given and the pituitrin is discontinued. I have used this method on many cases and I do not think I have seen any ill effects on the mother or child.

If this method is not successful one may use the bougie, the Voorhees bag, or rupture of the membranes. I prefer the bag method and have had better results with that than with the bougie. As yet I have not used rupture of the membranes very much.

If any of the signs enumerated above are present, indicating marked disproportion, I am in the habit of doing a low cervical Cæsarean section and, up to the present, have had no reason to regret that choice. I would hesitate very much about doing a classical Cæsarean section after a test of labour had been given.

By watching these cases very carefully and by being fully aware of the danger signs one will be able to deliver the majority of these cases in the ordinary way. Many will be delivered by low forceps, a few will be delivered by mid forceps, and a very small percentage will have to be delivered by high forceps or by Cæsarean section.

I have illustrated this problem by picking out a few case histories.

#### CASE 1

Mrs. H., aged 28 years, primipara.

*Pelvic measurements.*—Sp. 24 cm., Cr. 26 cm., Tr. 31 cm., Baud. 19 cm., L.O. 21 cm., R.O. 21.5 cm., C.D. 11.5 cm., B.I. 8.75 cm.

This patient went along normally until the last month, when the head did not sink down into the pelvis. However, I was able to push it into the pelvis until two weeks before term. A bag was inserted to induce labour and after eight hours a healthy child, weighing 6 lbs., 10 ozs., was delivered with low forceps. This patient made an uninterrupted recovery, but if the baby had been much larger in this case, I might have had a great deal of difficulty.

#### CASE 2

Mrs. S., aged 36 years, primipara.

*Pelvic measurements.*—Sp. 24 cm., Cr. 26 cm., Tr. 33 cm., Baud. 21 cm., L.O. 22 cm., R.O. 22 cm., C.D. 12.5 cm., B.I. 7.5 cm.

The head of the fetus fitted into the pelvis until ten days before the patient was due. Labour was induced by rupturing the membranes. She had a long labour. Mid forceps were applied and an infant weighing 7 lbs., 2 oz., was delivered. The mother made an uninterrupted recovery. Again, much increase in the size of the baby might have caused a very difficult delivery.

#### CASE 3

Mrs. P., aged 39 years, multipara.

*Pelvic measurements.*—Sp. 25 cm., Cr. 28 cm., Tr. 32 cm., Baud. 22 cm., L.O. 21 cm., R.O. 23 cm., C.D. 12.5 cm., B.I. 8.5 cm.

This patient had had one still-born baby, weighing ten pounds, after a high forceps operation had been done. She came into the hospital two weeks ahead of time and induction of labour was attempted with a bag. This failed and the patient would not allow anything else to be done. She came in two weeks later and after being in labour for twelve hours the cervix was fully dilated. The head, however, would not engage. The anterior lip became quite oedematous and was very dark in colour. A low cervical Cæsarean section was done and a nine pound baby was obtained. The patient made a good recovery. I think that it may have been possible, in this case, to deliver the patient in the ordinary way at the time that she first came in the hospital if she had permitted me to insert another bag or rupture the membranes.

#### CASE 4

Mrs. L., aged 26 years, primipara.

*Pelvic measurements.*—Sp. 28 cm., Cr., 31 cm., Tr. 34 cm., Baud. 20 cm., L.O. 23 cm., R.O. 24 cm., B.I. 8 cm.

I could not get the diagonal conjugate in this case, because the patient was very difficult to examine. I thought the head would go into the pelvis but, again, this was difficult to determine owing to the fact that the patient was hard to examine. I induced labour at term by means of a bag. The patient was in labour 24 hours and then the os was fully dilated. An x-ray showed that the patient had a heart shaped pelvis with some shortening of the anteroposterior diameter of the inlet. A low cervical Cæsarean section was done and an infant weighing 7 lbs., 11 oz., was delivered. If labour had been induced two weeks ahead of time in this case I think she might have been delivered in the ordinary way.

#### CASE 5

Mrs. S., aged 19 years, primipara.

*Pelvic measurements.*—Sp. 25 cm., Cr. 28 cm., Tr. 32 cm., Baud. 21 cm., L.O. 23 cm., R.O. 23 cm., C.D. 12 cm., B.I. 8.5 cm.

Two weeks before term the head of the fetus would not go into the pelvis and the patient developed pre-eclamptic toxæmia. Labour was induced by means of a bag and the patient was delivered, after twelve hours, of an infant weighing 7 lbs., 10 oz. The patient made a good recovery, but this might have been a very difficult case as the patient looked as if she had had rickets when young.



## FOCAL INFECTION\*

BY DUNCAN GRAHAM,

*Toronto*

A LARGE percentage of the patients one sees in both hospital and consulting practice suffering from subacute or chronic disease give a history of earlier treatment for the removal of foci of infection. While it is true that many of them have been definitely helped, one is impressed by the fact that the removal of a focus or foci of infection has resulted only too often in little or no improvement in the health of the patient. Occasionally his disability has been increased, or new and more severe symptoms, the direct result of the operation, have developed, for example, lung abscess. One naturally asks oneself the question: Why should so many patients fail to respond more favourably to this rational form of therapy? It would appear that the chief reasons for lack of improvement in these patients are: (1) an inadequate appreciation of the causal relationship of focal infection to various chronic conditions; (2) an incomplete diagnosis, and, therefore, an incomplete plan of treatment for the individual patient; (3) a lack of proper cooperation in both diagnosis and treatment between the physician in charge of the patient and the medical or dental specialist who removes the foci; (4) an inadequate follow-up of patients under treatment. It is to these aspects of the question of focal infection that I wish to direct my remarks.

It is unnecessary to refer to the evidence upon which the principle of focal infection is based, if the frequency with which the removal of foci of infection is recommended by the profession may be taken as a proof of the recognition of its importance as a cause of disease. However, the manner in which foci of infection may affect the body locally or generally is not so generally appreciated.

By the term "focal infection" one means a chronic, usually low-grade, infection that develops insidiously and progresses slowly, producing symptoms of local and systemic disease. It is a common primary cause of

chronic ill-health, but more often acts as a contributing factor in disease conditions primarily due to other causes. The focus or foci causing the infection may be primary, or secondary and metastatic. More than one primary or metastatic focus may be present, and the infective or toxic activity of each may be constant, but is more often intermittent, in character. The common sites of primary foci are in the tonsils, gums and teeth, nasopharynx, paranasal sinuses, ear, and urogenital tract. Bacteria invade one or more of these areas and may or may not produce local symptoms, depending on the severity of the inflammatory reaction. If definite local symptoms develop, the patient may consult his physician or, in the case of the gums and teeth, go direct to his dentist. The diagnosis is comparatively easy and, providing the focus can be removed or drained satisfactorily, the local symptoms are relieved and, if treated early, the damage to distant parts of the body is repaired or prevented from developing. Unfortunately, local symptoms are often absent; the bacteria continue to multiply, producing toxins which are absorbed, causing systemic disease by intoxication; or the bacteria spread by direct extension to adjacent structures or reach the blood or lymph stream and localize in distant parts of the body, forming secondary or metastatic foci of infection, before the patient consults his physician. Metastatic foci may be found in any part of the body, but are most commonly present in the periarticular tissues of joints, in the endocardium, gall bladder and kidneys, less often in the mucous membranes of the lower respiratory and gastrointestinal tracts, muscles and tendons, eye and ear. Local symptoms are more commonly present and more severe with metastatic foci. The character of the symptoms upon which the diagnosis of metastatic infection depends is determined by the location of the lesion and by the severity and duration of the inflammatory reaction, and is affected by the activity of the primary focus responsible for the lesion. The injured part may recover

\* Read at the fifty-first annual meeting of the Ontario Medical Association, May 27, 1931.



from the first infection, with or without the removal of the primary focus, but, after repeated re-infection, structural changes occur which result in permanent disturbances of function and, unless the area can be removed by operation, complete amelioration of local symptoms is impossible. If these few essential points referring to the development of focal infection from primary and metastatic foci are borne in mind, it will be less difficult to understand the lack of uniformity in the results of treatment following the removal of foci of infection in patients suffering from apparently similar clinical conditions. One can appreciate more fully the importance of a complete diagnosis before recommending a plan of treatment.

In the search for foci of infection as a cause of local disturbances of function or of general ill-health, it is not sufficient to confine one's efforts in diagnosis to their detection. One should try to determine if the foci found are causing any systemic disturbance. Are they the primary cause of the disability? Or, as more commonly occurs, are they a secondary etiological factor affecting the progress of a diseased condition due to another cause? In the first instance, the removal of foci of infection will prevent the possible future development of systemic disease from these areas. If focal infection is the primary cause of ill-health, and all foci of infection have been found and can be eradicated, one may expect that the patient's health will improve, and a cure or a marked amelioration of symptoms result. In the instance of focal infection as a contributing cause, the treatment of foci is necessary but must be considered as supplementary to the recognized treatment of the cause of the primary condition present. This conclusion may appear too obvious for mention, but one sees too frequently patients suffering from a mild exacerbation of a chronic nephritis, a mild diabetes mellitus, a mild hyperthyroidism or Addison's "pernicious" anaemia, in which foci of definite infection have been removed and the primary cause of ill-health overlooked. Sufficient has been said to stress the necessity of an accurate and complete diagnosis in order that the most effective plan of treatment may be carried out.

The exclusion of focal infection as a possible cause of chronic disease is a difficult problem. Often the data obtained from the clinical history

and the routine physical and laboratory examinations suggest focal infection as a likely cause of the patient's symptoms. Disease in likely sites of focal infection appears to be absent. The physician here requires the assistance of the specialist skilled in the examination of the eye, ear, nose and throat, the gums and teeth, and in the interpretation of x-ray findings, to help prove or exclude the existence of focal infection before a final and complete diagnosis is made. In this combined diagnosis, which often ends in a combined treatment, a closer cooperation than exists at present and a better common understanding of the problem of focal infection are necessary for the more effective treatment of the patient. The reasons for this must be obvious. By the time a patient consults his physician, or goes direct to the specialist, the effects of a focal infection are seldom local. In the treatment of a patient with a badly infected tooth or tonsil, it is not simply a question of the advisability of its removal. A more important question is the possible co-existence of systemic disease or metastatic infection and whether or not another disease condition contributing to the patient's illness is present. One may not realize that the same therapeutic measure may be chiefly preventive in one case and chiefly curative in another. A specialist treating focal infection should caution his patient as to the possible existence of systemic disease and refer him to his family physician for a general examination. If systemic disease is suspected, he should refer the patient to his physician before attempting operative treatment, as systemic conditions may be aggravated by the too early removal of foci. Both physician and specialist should insist that the patient return periodically after the operation to observe the effect of the treatment. Complications requiring prompt attention may develop after operation, or symptoms suggesting activity of latent metastatic foci may appear, or the presence of another disease condition overlooked in the first examination may become manifest. An incomplete recovery is an indication for re-investigation of the case.

Family physicians should examine their patients periodically for early signs of focal infection. After all, has not the family physician the greatest opportunity of detecting the beginnings of primary focal infection and recommending early treatment which may prevent the

later development of serious systemic disease? If repeated minimal infections from primary foci, occurring in childhood and adolescence, were prevented, who can estimate the effect it might have in preventing the development of the degenerative diseases of middle life?

The treatment of patients should be based on the results of an accurate and complete diagnosis, remembering always that it is the patient with a focal infection that requires treatment and not the focal infection alone. Even though focal infection is the only cause found for the patient's ill-health, more than local treatment is required. The general condition of the patient must be considered and appropriate measures prescribed to aid in making the recovery as complete as possible. As an

aid in the recovery from existing infection and the prevention of later infection, attention must be given to the correction or prevention of factors, such as, unbalanced diet, extreme fatigue, exposure to cold, dust and trauma, which lower body resistance and predispose it to later infection of all kinds.

In conclusion, then, a plea is made for a fuller appreciation of the causal relationship of focal infection to chronic disease conditions, a more complete treatment of patients, greater attention to the study of the after-effects of treatment, and a closer cooperation between physician and specialist, that our patients may receive the maximum benefit from the removal of foci of infection.

### HEART CONDITIONS SIMULATING ACUTE ABDOMINAL SYMPTOMS\*

BY GERALD R. BURNS, M.D., C.M.,

*Demonstrator in Clinical Medicine, Dalhousie University,  
Halifax*

THIS is a most interesting and vital subject, one upon which may hinge a patient's life. It brings up those finer points of diagnosis the final analysis of which may place the immediate future of the patient in the hands of the internist or the surgeon. I have deliberately refrained from presenting a detailed account of the electrocardiographic or x-ray picture that is more or less typical of the heart conditions under consideration because, in the majority of cases, a diagnosis can be made from a careful history and clinical examination of the patient. In the last fifteen months, I have seen four cases of coronary artery thrombosis which were sent into hospital with the diagnosis of acute abdominal emergency. Moreover, current medical journals in practically every issue report cases of a similar nature. Discussion of these cases is, therefore, not a matter merely of academic interest but one which primarily concerns the general practitioner.

In opening I should like to present three cases which illustrate the points to be taken under consideration.

\* A post-graduate lecture delivered before the Lunenburg-Queens Medical Society.

#### CASE 1

Mr. B., a farmer, aged 46, was admitted to the Victoria General Hospital, Halifax, on January 20, 1930, complaining of severe pain in the epigastrium. He was in a condition of shock, and was sent into hospital with a diagnosis of a ruptured gastric ulcer.

*Personal history.*—He had had acute rheumatic fever seven years previously. During the past two years he had experienced increasing shortness of breath and had had several attacks of moderately severe pain in the stomach, which were labelled acute indigestion, and for which he was placed on a dietary regime. Two days before admission he was suddenly seized while walking with a severe colicky pain in the epigastrium which required large doses of morphine for relief. This attack was repeated the following day while he was in bed and he was rushed to hospital as an abdominal emergency.

*Physical examination.*—On admission to hospital the patient was cyanosed, in great distress, and complaining of steady severe pain in the epigastrium. The abdomen was distended, the percussion note was tympanitic throughout, the upper abdominal muscles were rigid, but not board-like, and there was tenderness along the right subcostal margin. There were râles at the bases of both lungs. The heart was somewhat enlarged to the left; no murmur or friction sound was detected. The arteries were soft; pulse rate was 140 with a tic-tac rhythm, and regular; blood pressure, 112/42. The leucocyte count was 18,000. A diagnosis of coronary artery thrombosis was made, which was proved correct the following morning by obtaining a characteristic electrocardiographic picture.

#### CASE 2

Mr. J., a farmer, aged 45, was admitted to the Victoria General Hospital on November 3, 1929, complaining of severe pain below the sternum.



*History of illness.*—On the previous evening he had noticed a burning pain below the sternum and pains across the back and shoulders. Several hours later he was seized with a violent pain below the sternum and was sent to the hospital with the diagnosis of an "acute abdomen."

*Physical examination* showed a well developed male who appeared to be in agony. There was a slight cyanotic tinge to the lips, lobes of the ears and finger tips; the respirations were hurried and grunting. The abdomen was moderately distended, and the upper abdominal muscles were tense, but no tender point could be made out. The heart was not enlarged on percussion; the pulse rate 90, regular and full; a to-and-fro friction rub was heard over the pericardium. The arteries were soft and elastic; blood pressure 120/70. The lungs were clear. The leucocytes numbered 14,000. A diagnosis of coronary artery thrombosis was made, which was later substantiated by the electrocardiographic picture.

#### CASE 3

A farmer, aged 46, was admitted to hospital with the following history.

*History of illness.*—For the past two years he had had severe attacks of epigastric pain, coming on about once a month without apparent cause and relieved by vomiting. The pain had been getting worse during the past two weeks. He localized the pain below the ensiform cartilage, and described it as sharp, increased by coughing or exertion and by a meal heavier than he was ordinarily accustomed to taking. It was usually worse at night.

*Physical examination* showed the heart to be enlarged to the left. There was a presystolic murmur at the apex of the heart, as well as a thrill. The arteries were thick and tortuous; the blood pressure 195/136. The liver was enlarged and its margin tender, and there was slight spasm of the upper abdominal muscles.

It is to be noted that the pain was worse at night, and this, combined with other symptoms, would make one think of gall-stones or duodenal ulcer, but what is of more importance is the fact that the pain was made worse by exertion and also that there were unmistakable cardiac findings. After several days' rest in bed, the attacks were less frequent and were relieved by nitroglycerin.

The diagnosis of angina pectoris was made.

Thrombosis of the coronary artery is by far the worst offender in the class of cardiac conditions which may offer some difficulty in differentiation from acute abdominal conditions. James B. Herrick has classified the cases as follows: (1) Cases of instantaneous death, in which there is no death struggle, the heart beat and respiration stopping at once. (2) Cases of death within a few minutes or a few hours after obstruction. These are the cases that are found dead or in the death agony by the physician. (3) Cases of severity in which, however, death is delayed for several hours, days or months, or recovery takes place. (4) A group that may be assumed to exist, embracing cases with mild symptoms, for example, a slight precordial pain, ordinarily not recognized, due to obstruction in the smaller branches of the arteries.

It is with the third group of cases that we are particularly concerned in this discussion. This form of coronary thrombosis may be described as an attack of angina, with unbearable pain, which is not relieved by amyl nitrite, but only eased by repeated large doses of morphine. Frequently there is the fear of impending dissolution. There may be radiation of the pain over the chest and down the arms, which renders the diagnosis obvious, but it is those cases in which the radiation is abdominal, or in which the pain is limited entirely to the abdomen, that are apt to be erroneously diagnosed as abdominal catastrophes. Because of the sudden onset of the pain, and its presence in the upper abdomen, the surgeon is called in and finds it difficult to explain the rigidity of the upper abdominal muscles, the tenderness along the right subcostal margin and the degree of shock that is present. Some of these cases may go to the operating room with a diagnosis of perforated gastric ulcer, acute pancreatitis or acute cholecystitis, but on opening the abdomen no disease is found below the diaphragm to explain the symptoms.

The coronary arteries are not, as used to be thought, "end" arteries, but the anastomoses may be relatively inadequate, so that occlusion of one of the branches, whether it be sudden or gradual, eventually leads to the death of the muscle supplied by that branch. When the main trunk of the coronary artery is occluded, sudden death results, but occlusion of one of the larger branches is compatible with life. The element of time counts for much in the eventual result. If death is not immediate or speedy, adaptation may occur. Post-mortem findings in the hearts of those who have had agonizing seizures reveal patches of fibrosis in the walls of the heart, and would indicate that the attacks were due to complete occlusion of one of the smaller branches. The area so affected undergoes those changes which are typical of infarction and it is these changes which explain the clinical picture of coronary thrombosis. The infarction weakens the force of the heart-beat, and explains the dyspnoea, pallor, and fall in blood pressure. The presence of the anæmic area accounts for the fever and leucocytosis. Should the infarcted area extend to the epicardium, a localized pericarditis is the result, with the production of a



pericardial friction rub and continuous pain. Should the affected area encroach upon the endocardium, a parietal thrombus may be formed, part of which may break off and send emboli to the lungs, brain, liver or spleen. Should the patient survive, the area affected becomes fibrosed and may weaken the wall of the heart. Autopsies have shown aneurysmal dilatation and rupture at the site of a previous infarction.

Heart failure, occurring suddenly, may be manifested in several ways. There may be ventricular fibrillation and sudden death; syncope following a rapid drop in blood pressure; pulmonary oedema; or perhaps, and most important, what concerns us here, sudden failure of the right heart, with sudden engorgement of the liver and abdominal vessels. We are all familiar with the tender, swollen liver of chronic heart failure, but this is not to be compared with the sudden stretching of Glisson's capsule and the resulting severe, agonizing pain and tenderness along the right subcostal margin. This is a known factor in the production of pain, and we can add that there must be some unusual distribution of the referred nerve pain through the vagus by means of its communicating branches. In the two cases quoted at the beginning of this paper the tenderness was noted along the right subcostal margin with associated spasm of the upper abdominal muscles; but here there was not the board-like rigidity of the abdominal muscles which one finds in catastrophes of the upper abdominal quadrant.

In the examination of the patient, one of the most important points is that the history of the illness should be unbiased and accurate. Special attention should be given to the family history as regards death from high blood pressure, apoplexy, angina pectoris, and so-called "acute indigestion," or any sickness on the patient's part which may lead up to any of these conditions. A history of pain or distress coming on regularly after eating, or the so-called "hunger pains" of duodenal ulcer, relieved in the first place by soda bicarbonate and in the second place by the munching of a cracker or drinking a glass of milk, rather points to a condition below the diaphragm. A history of typhoid fever would suggest the possibility of cholecystitis, whereas acute rheu-

matic fever would certainly direct one's attention first of all to the cardio-vascular system. Most arteriosclerotics complain of undue belching of gas and indigestion, so that a history of these common symptoms would indicate either an abdominal or cardiac crisis. Indigestion and nausea coming on after the evening meal, over a period of weeks or months, are rather suggestive of gall bladder disease.

On examination, the patient may show a tinge of cyanosis about the lips, nose, lobes of the ears and the finger-tips. Should he be in a state of moderate or severe shock he is of an ashen gray colour, owing to cyanosis added to the pallor of the shock. He lies quietly in bed and does not lash about as does the patient suffering from gall-bladder colic; he is afraid to move because of the fear of impending death.

The blood pressure is usually low, or normal, but it must be remembered that there has been a drop from a previously high reading. The pulse is rapid, soft, and may be irregular, owing to fibrillation. The heart may or may not be enlarged. The heart sounds are rapid and distant; a tic-tac or gallop rhythm may be present and usually is of serious omen. The temperature at first may be subnormal, but after twenty-four hours it rises to from 101° to 103°F., and with it the leucocyte count, the average count being between 14,000 and 18,000. In favourable cases the temperature drops to normal within three or four days. A pericardial friction rub is most characteristic of coronary thrombosis. It usually develops after twenty-four hours and, when once heard, immediately places the case beyond dispute. It is the characteristic sound compared to the creaking of new leather. Dyspnoea, Cheyne-Stokes breathing, and crackling râles at the bases of the lungs, may be found in moderate and severe forms.

The liver is usually enlarged and tenderness is found along the margin of this organ; indeed the pain along the liver margin may be excruciating. In gall-bladder colic the maximum point of tenderness is usually over the gall bladder itself and radiates to the subscapular area and occasionally to the chest, never down the arms. Moreover, the pain is more spasmodic than the pain of coronary thrombosis, and is relieved by smaller doses of morphine, and bile is more likely to be found in the urine.

A perforated gastric ulcer will cause sudden

severe pain in the epigastrium, but the radiation is downwards; the abdominal muscles are board-like and the abdomen distended.

Acute pancreatitis causes severe spasmodic pain in the upper abdomen, shock and vomiting. The upper abdominal muscles are tense, and there is distension of this part of the abdomen.

The presence of fever, leucocytosis, upper abdominal pain and tenderness may help but little in arriving at the correct diagnosis, but the drop in blood pressure, the character of the heart sounds, and evidence of cardiac failure will usually suffice for a correct diagnosis. The electrocardiograph is the final court of appeal, and, in typical cases shows departure of the S T wave from the isoelectric line and the inversion of the T wave. Coronary thrombosis is thus a definite disease entity.

Angina pectoris, a symptom found, as we have seen, in coronary thrombosis, is also, a symptom of general arteriosclerosis with special involvement of the root of the aorta and the coronary vessels.

Angina pectoris is characterized by pain which usually begins over the precordium, and radiates up the sternum and down the inner aspect of the left arm, or sometimes the right arm. It may radiate up the side of the neck and along the back of the head. The pain is usually excruciating. The patient is afraid to move and is obsessed with the fear of impending death, and the chest feels constricted as with a vice-like grip. In some instances the pain radiates downwards towards the epigastrium and may be referred to this locality alone.

The causes that may determine an attack vary. Commonly it follows some form of exercise or an emotional upset, such as a fit of anger, and quite frequently it follows a heavier meal than is customary. A patient presenting himself with severe pain in the epigastrium after a heavy meal is very apt to be labelled acute indigestion by the unwary; such a diagnosis is really a cloak of ignorance and misses the real underlying condition. The history in such a case is important and will usually bring out some limitation of cardiac reserve. The sequence in such a case is that the sufferer remains immobile and breathless until the pain passes off. He then perspires freely, is dyspnoic, and complains of fatigue for several days. There may be râles at the bases of the lungs and the sputum may be blood-tinged. The pulse is soft and

regular, the heart sounds are distant, the blood pressure remains high. Hyperæsthesia over the site of the pain is usual. An important point in the diagnosis is that such a pain is very often relieved by a dose of one of the vasodilators, such as amyl nitrite, while the pain in coronary thrombosis is not.

The rôle that disturbances of the heart's conduction apparatus may play in simulating acute abdominal emergencies is small, but their ability to do so is recognized. Auricular fibrillation is a condition of disturbed mechanism in which the well-ordered and well-balanced impulses of the pace-maker are replaced by a "circus movement" in the auricles which fling out impulses at irregular intervals that endeavour to pass through the auriculo-ventricular node. The resulting pulse is totally irregular in time and volume. In untreated cases there is a discrepancy between the apical and pulse rates, called the pulse-deficit, which, combined with the irregular pulse, makes the condition easy of recognition. Auricular fibrillation may occur with or without heart failure. In the former case there may be sudden heart failure with the appearance of arrhythmia and consequent rapid engorgement of the liver and abdominal vessels. We have already referred to the rapid engorgement of the liver and sudden stretching of Glisson's capsule as a factor in the production of epigastric pain and tenderness. The rapid congestion of the intestinal tract producing diarrhoea, vomiting, and abdominal distress might well be looked upon as an abdominal crisis, but the inequality of the pulse, the pulse-deficit and signs of heart failure, when noted, would immediately place the guilt above the diaphragm.

Paroxysmal tachycardia is another disturbance of the cardiac mechanism. Its origin is not definitely known. The pulse rate may be roughly speaking doubled, trebled or quadrupled. The attack comes on suddenly, may last a few minutes, hours, days or weeks, and may be attended by epigastric pain. If the heart rate is not excessive the cause of the underlying pain may be difficult of recognition.

The pain in acute fibrinous pericarditis may be referred to the abdomen and present abdominal symptoms which may confound the surgeon and lead to an unnecessary laparotomy. This form of heart disease is very rarely a primary condition; it is secondary to some



adjacent focus, usually of a tuberculous nature, in the lungs or mediastinum. The characteristic friction rub is, of all physical signs, the most evanescent and whimsical, and is most notoriously overlooked. The abdominal pain is usually due to extension of the inflammation to the diaphragm, and referred to the umbilicus. The history of the onset of the illness, the appearance of the patient (most of these patients lean forward in bed to obtain relief from the pain) and the fact that the pain is made worse by coughing, movement or deep breathing, should focus the examiner's attention on some condition above the diaphragm.

In conclusion, I should like to state that my

object has been to draw attention to the fact that at times common cardiac conditions may very closely simulate acute conditions in the abdomen, leading to unnecessary operation and consequent death of the patient. The conditions I have mentioned practically all have more or less pronounced features, in particular cases, fever, leucocytosis, abdominal pain, muscular spasm, shock, as well as minor symptoms, such as vomiting, diarrhoea, nausea, belching of gas, etc., rendering the clinical picture very much the same. The second point I wish to make is that a careful history and a careful examination of the cardio-vascular system are of the utmost importance.

### THE PROSTATIC PROBLEM\*

BY JOHN H. CUNNINGHAM, M.D.,

*Boston, Mass., U.S.A.*

IN considering the prostatic problem, the most important fact to be appreciated is that the prostate itself is but the primary factor producing urinary retention. The presence of this retention influences the activity of the kidneys, and in consequence reflects unfavourably upon the circulation. Thus, a medical aspect develops which often becomes the most important feature of the picture; and surgery is but the means of improving it.

Details of surgical technique in the various prostatic operations have long been appreciated, and, as in thyroid operations, have required only surgical skill to be satisfactorily executed. The period of development of modern surgical technique in connection with prostatic operations has been of fascinating interest, and so absorbing that it only remained for its perfection to cause the realization that technical operative skill was not sufficient, and that underlying and fundamentally important factors must be appreciated, and their influence estimated and controlled, that the benefit of surgical skill might serve its best purpose.

In view of our present knowledge of the requirements for pronouncing a prostatic patient fit or unfit for surgical treatment, every patient with prostatic obstruction must be

viewed in terms of renal and circulatory impairment and should be given the advantages of most careful clinical and laboratory study, to determine the best course to pursue. Prostatic enlargement resulting in partial or complete obstruction to the outflow of urine from the bladder presents a condition differing in many respects from most surgical problems, chiefly for two reasons. First: prostatic obstruction, either benign or malignant, occurs, with rare exceptions, with advanced age; in fact, it is the most common malady in the male of advanced years, requiring surgical intervention; and secondly; the character of the obstruction varies greatly, which makes necessary entirely different operative technique, according to the particular form of obstruction. Were it not for the fact that the individual with prostatic obstruction is usually in the period of physical decline, we should only have to consider the type of obstruction, and choose the suitable method for its relief; but such is not the case. The surgical indications may be evident, yet to execute them without accurately determining the patient's general condition, and subjecting him to preliminary treatment to repair defects, before removing the gland, is unjustifiable in the light of our present knowledge.

In order to give an impression of the average

\* Read at the fiftieth anniversary of the New Brunswick Medical Society, St. Andrews, June 24, 1930.



general condition of the prostatic patient, I have looked over our last 400 cases which have been operated upon. It is found that the age has varied from 44 to 89 years; and the greatest number of cases occurred between 60 and 70 years. Associated defects were discovered, as follows: renal, over 90 per cent; circulatory, over 75 per cent; respiratory, over 20 per cent; nervous system changes, over 25 per cent.

It is evident that renal and cardiac defects are frequent, and the resulting cardio-renal complex is the commonest and most serious condition associated with prostatic obstruction, and is, moreover, the condition which produces the most dangerous factor in connection with the prostatic problem.

The most important feature of pre-operative study is, therefore, to determine the condition of the kidneys and circulatory system. Attention to the prostate is primarily to establish the fact that the prostate is hindering the complete emptying of the bladder, and to determine the existence of residual urine, resulting from this cause. The obstructing prostate is, moreover, to be considered only as the primary cause of degenerative secondary changes in the kidneys and circulatory system. These degenerative changes must be recognized and rectified as far as possible before operative procedures can properly be considered. The pre-operative study, aside from a comprehensive appreciation of the patient's general condition, is, in consequence, directed chiefly to the kidneys and circulation, which in all prostatic patients must be expected to suffer from urinary back pressure and infection. Realizing these features, it has been proved that renal impairment will depend, in large measure, upon the degree of the urinary back pressure, which produces dilatation, not only of the ureters but of the kidney pelves and calices, and a thinning of the renal cortex, whereby the secretory power of the kidneys is diminished.

Infection superimposed upon these mechanical degenerative changes further diminishes the kidneys' efficiency. The impairment of renal function will depend upon the amount of destruction of kidney tissue and the degree of renal infection, and varies, as a rule, with the amount of the residual urine and its character, whether sterile or infected.

Dependent upon this process, inability of the kidney to eliminate in a normal manner results; and the heart, in consequence, has an increased burden placed upon it. A definite cardio-renal complex naturally occurs; a varying degree of toxæmia develops insidiously, with an abnormal blood nitrogen retention, and uræmia is an inevitable consequence. Evidence of this condition is obtained from an estimation of the amount of urine secreted in 24 hours, urinalysis, renal function tests, and evidences of the blood retention of nitrogen products, from blood chemistry, together with the estimation of the cardiac condition by the usual means of examination, with special reference to myocardial changes.

In the olden days, deaths after prostatectomy, with rare exceptions, occurred mostly from uræmia, occasionally from sepsis, and, rarely, from hæmorrhage. The mortality to-day depends upon the same factors, but we realize that much may be accomplished by pre-operative preparation in overcoming uræmia and sepsis, so that to-day more patients may be safely subjected to operation. As a consequence, the mortality has changed from about 30 per cent, twenty years ago, to about 5 per cent at the present time.

Through pre-operative study and preparation a rather definite standard of physical requirements has been developed, based largely on tests of renal activity in its different phases, on the estimation of the general metabolism by blood chemistry, and on cardiac investigations. Treatment prior to operation may repair the damage done, and such pre-operative repair now brings the majority of prostatic patients up to the requirements for safe surgical intervention; accordingly, to-day, apprehension regarding the operation is not the rule, convalescence is relatively easy, and the mortality surprisingly low. If the required standard cannot be attained by pre-operative treatment, some less severe measure than a radical operation is indicated, and may be undertaken to relieve the distressing symptoms of retention and its consequences, but without the idea of cure.

In the prostatic problem it is the kidneys which demand the strictest attention prior to and following the operation, and it is the recognition of this fact, and the employment of proper treatment to improve renal and cardiac

efficiency and overcome the associated toxæmia that has been responsible, more than anything, for the advance in prostatic surgery.

The degree of impairment of kidney function is determined by complete urinalysis, particularly with reference to the elimination of urea, the specific gravity, the reaction and renal elements in the sediment, the 24-hour output (which must be at least 50 ounces), the phenol-sulphonphthalein test, which must show 40 per cent as a minimum amount eliminated in two hours; blood urea tests, which should show a maximum of 40 mg. per 100 cubic centimetres of blood; a systolic blood pressure under 200, and a diastolic pressure within proportionate limits; no febrile state dependent upon renal or bladder infection, or upon other more remote causes. These tests, I believe, are the minimum requirements in judging the safety of a radical operation, interpreted, of course, in the light of the patient's general condition in other respects.

Bladder drainage is the most important feature of pre-operative treatment, and is the means to the end of permitting the forcing of fluids and an estimation of the recuperative power of the individual. At least three quarts of water must be taken daily by mouth, if the stomach will permit; and, if not, by rectal drip, the duodenal tube, subcutaneously or intravenously, in order to overcome any toxic state through increased elimination. When necessary, the heart should be supported, and the kidneys stimulated by drugs of the digitalin and caffein groups, to aid in stabilizing the fluid intake and output.

To attain the required state of physical equilibrium may require only ten to twenty days, yet we have had many patients, who were drained by a suprapubic tube for months before they arrived at the necessary standard for prostatectomy. Indeed, some never attain this standard and have to be content with a permanent suprapubic tube, which, as a matter of fact, accomplishes as much as the removal of the gland insofar as improvement in the general condition is concerned.

In regard to the character of prostatic obstruction, this is found to vary greatly. It may be malignant or benign; it may be intraurethral or intravesical in location, a simple prostatic bar, or a sclerotic contracture of the vesical neck; or the gland, instead of being of the

hypertrophic type, may be small and fibrous. Any of these quite different forms of prostatic obstruction produce residual urine, and give the symptom-complex of prostatism. Determination of the type of obstruction present in any individual patient depends upon the local examination. Elderly men, with a gradually increasing frequency of urination, especially at night, and having difficulty with the stream, should excite a suspicion of prostatic obstruction of some form. An investigation of the prostate by rectal palpation should be instituted, and an examination of the bladder by a catheter, to determine the presence or absence of residual urine.

The investigation by the catheter is by far the more important feature in establishing the diagnosis, because if the catheter meets with obstruction in the prostatic urethra and residual urine is discovered, the diagnosis of some form of prostatic obstruction is clear. Investigation of the prostate by rectum alone may give a very false impression unless the gland is much enlarged, and even then, without determining the amount of residual urine, the degree of obstruction from the enlarged gland is not known.

Every obstructing prostate is not enlarged, and quite as much obstruction may exist in a gland which by rectal examination seems to be but little if any enlarged, because of some lesion in the prostatic urethra, a prostatic bar, or vesical neck sclerosis, and if obstruction is due to the small fibrous prostate, rectal examination showing the gland not to be enlarged is often misleading. Therefore, prostatic obstruction cannot be determined by rectal examination alone, which further emphasizes the primary necessity of employing a catheter in the examination. The type of obstruction present can only be determined by cystoscopic study.

There are many different operations employed for the relief of prostatic obstruction. No one operation is suitable for all cases, not only because the nature of the obstruction varies greatly but because of the variation in the patient's general condition. If the patient's general condition is below the standard required for a radical removal of the gland, some less severe method of relief of the bladder retention must be considered.

Prostatics, in whom the obstruction is due to a bar at the vesical neck, or sclerosis of the



vesical sphincter, whether or not the general condition would permit of a prostatectomy, are best subjected to a procedure which may be carried out under local anæsthesia, if necessary, whereby with one of the many special instruments the obstructing portion of the gland may be cut or burned away, or the sclerotic and contracted tissue at the vesical orifice divided. Patients, with a benign or malignant gland, who are unfit to stand a radical operation, and who do not possess the type of gland suitable for the palliative operation referred to, and for whom regular catheterization cannot be carried out, either because of the obstructive nature of the gland or because of their mentality or social status, may have to submit to the establishment of a permanent suprapubic drainage.

The discussion as to whether a large adenomatous gland shall be removed by the suprapubic or perineal route will, in my opinion, depend primarily upon an understanding of how much of a physical tax the individual patient may be subjected to with safety, yet if the obstructing gland is malignant or of the small, fibrous variety it should be attacked through the perineal route without question.

Suprapubic prostatectomy, whether by the one or two stage technique, carries a higher mortality than the perineal operations carried out either by the dissecting or median urethral enucleation methods. The actual advantage of the suprapubic over the perineal route is that a relatively more satisfactory result may be expected even in the hands of an expert, and for those not expert the suprapubic method is easier of accomplishment. It should not be overlooked, to repeat, that suprapubic prostatectomy carries a distinctly higher mortality than does the perineal operation. These facts should lead us to subject only the best risks to the suprapubic operation. Those not coming up to the general physical standard required for suprapubic prostatectomy, as evidenced by the renal function tests, blood chemistry, and the general features already considered, may often be subjected with safety to a perineal operation.

If a suspicion exists prior to operation that the obstructing gland is carcinomatous in character, because of the symptoms of sciatic pain, associated with the subjective symptoms

of prostatism, and if the rectal examination gives a sense of marked induration with hard, irregular areas, and the induration in the prostate extends upward into the region of the seminal vesicles, and the tissue posterior to the prostatic urethra is much increased, another problem presents itself. If obstruction exists to any marked degree and the patient's general condition is such as to permit of operation, the malignant obstruction, if great, should, in my opinion, be removed surgically through the perineum, if it is attacked at all. If the patient's general condition is poor and metastases are evident, permanent suprapubic drainage is more appropriate, with or without subsequent treatment by radium or x-ray.

Not infrequently benign hypertrophy and malignant disease occur together, in which event the obstruction may be due largely, if not entirely, to the benign growth. In such cases the obstruction may be relieved by simply removing the hypertrophied lobe without attempting to remove the malignant tissue.

In either event, prior to the operation, the gland should receive active radium treatment, to lessen the vitality of the malignant cells, because during the operation the malignant mass is usually broken into, blood spaces are opened up which form avenues for dissemination of the disease. At the time the gland is removed, radium should be left in the prostatic region for at least 500 millicurie hours, to exert a destructive influence on the remaining tissue, for it is well recognized that all the malignant tissue is most difficult to remove surgically, and it must be expected that some will be left. After the recovery from the operation, radium and deep x-ray therapy should be thoroughly employed, to give every chance for completely eliminating the disease locally, because recurrence of the growth is prone to occur, and may produce obstruction again.

To summarize this brief account of the general principles involved in the prostatic problem, I wish to convey the idea that the pathological events dependent upon prostatic obstruction are primarily mechanical in origin, and, secondarily, are due to infection; that back pressure in the kidneys with impairment of their function and the consequent cardio-renal complex, with toxæmia, is the most important and dangerous feature of the malady; that it is this



impairment of kidney function, with the resulting cardiac embarrassment and toxæmia, that is the common cause of death in the prostatic patient.

I wish to emphasize the fact that bladder drainage, whereby urinary back pressure is relieved and infection lessened, cardiac and renal stimulation and saturating the body with water will result in a varying degree of kidney, and consequently general, improvement; that there are certain special tests which should be employed to estimate the physical status, both general and local; and that it is unjustifiable to subject an individual to any operative procedure except suprapubic drainage, to relieve retention,

without first gaining the important knowledge and physical improvement which may be attained by pre-operative study and treatment. Such investigations determine the patient fit or unfit for radical surgical relief, and it is not the condition of the prostate so much as the condition of the kidneys and circulation, as well as the patient's general condition, in other respects, which determines this point.

In regard to the operative treatment, no one operation is suitable for all patients, and the choice of operation depends upon two features: the patient's general physical condition, and the character of the obstruction.

### THE VACCINE TREATMENT OF CHRONIC ARTHRITIS

By A. E. VIPOND, M.D.,

*Senior Physician to the Children's Hospital,  
Montreal*

CHRONIC arthritis, as all realize, is a disease that is most refractory to treatment. In point of frequency it ranks with heart disease, tuberculosis and cancer, and vies with them in the matter of suffering and incapacity. Consequently, any line of treatment that holds out promise is worthy of consideration. The disease has been attacked from many directions with only moderate success. Perhaps if we were certain as to its etiology we might make more progress, though not necessarily so. Focal infection, in the teeth, tonsils, appendix, cæcum, or what not, has been invoked as the cause, but the evidence for this view is not conclusive. Certainly, in my opinion, unless there is clear indication that these various structures are diseased surgical intervention, with the hope of clearing up a chronic arthritis, is not justifiable. It may very well be, however, that chronic arthritis is due to a low-grade infection, the organism in question gaining access to the body through the naso-pharyngeal lymph nodes and invading it along the regional lymph channels, without producing any notable local reaction. My observations would tend to show that this is the case. How the bacteria act is also a vexed question. On the matter of the part played by focal infection in the production of rheumatoid arthritis Douthwaite<sup>1</sup> has this to say. "It may

be accepted that the disease is never directly caused by microbial invasion in the sense that we find it in infective arthritis, nevertheless in a proportion of cases bacteria or their toxins may act as a flame applied to a fuse, and thus lead indirectly to an explosion which is represented by the acute form of rheumatoid arthritis. Other agencies, *e.g.*, exhaustion, protein sensitiveness and so on, may, however, act in like manner in the absence of microbial activity." Most observers will agree that bacteria are not found in the affected joints. Probably the lesions are due to bacterial products carried to the joints from some distant point. Some invoke the principle of protein shock. With this view I do not hold.

Since some of the best authorities have attempted to classify the various forms of arthritis, with indifferent success, others may be excused from the task. Suffice it to say here that the term "chronic arthritis" is taken to be synonymous with "rheumatoid arthritis," and my cases fall in this category, with the exception of two which I have called "osteoarthritis", being monoarticular and characterized by osteophytic outgrowths. These are probably examples of a different disease.

Chronic arthritis (rheumatoid arthritis), being of slow progression and prolonged duration,

might be expected, from our knowledge of the general behaviour of chronic infections towards vaccine therapy, to be a suitable field for the employment of a specific vaccine, could such be obtained. Opinions differ, of course, on this point, but the most recent observer, Mutch,<sup>2</sup> is favourable to this line of treatment. He says: "Inoculation with vaccines made from the infective bacteria of the various foci provokes pain reactions in the rheumatic areas, leads to antibody production, and is, undoubtedly, on occasion, followed by definite clinical improvement." In this paper I wish to draw attention to a number of cases of chronic arthritis treated with a vaccine prepared from a hæmolytic streptococcus which I have isolated from the enlarged external lymph nodes present in this disease.

In 1915, the writer published a paper<sup>3</sup> entitled "Recent Work on the Bacteriology of Rheumatoid Arthritis and its Treatment," embodying certain observations made at that time. Examination of rheumatoid patients revealed a definite enlargement of the external lymph-nodes, and from these a streptococcus was obtained. Twelve cases were treated with a vaccine made from this organism. The following conclusions were drawn at that time.

1. In 10 out of 12 cases of rheumatoid arthritis the same streptococcus was recovered from the enlarged nodes. A vaccine made from this organism, produced a cure, or a marked improvement in the symptoms and the local and general lesions.

2. In the early stage of the disease, that is, up to the third and fourth year, before grave articular changes have taken place, we can hope for relief of pain, disappearance of swelling, and a return of the function of the joints.

3. In chronic or advanced cases, from fifteen to twenty years' standing, we may expect to get relief of pain, lessening of the swelling, and increased power of motion, though we cannot hope to restore articular cartilages or produce new joints.

4. Culturing of the nodes in severe cases, after four or five months' treatment, and in much less time in early cases, proved to be negative, notwithstanding the fact that the streptococcus in question had been present in the nodes before treatment was instituted.

Since that time the writer has continued to treat his rheumatoid arthritis cases with marked

benefit on the same lines. The cases reported here have been under treatment during the past two years.

#### CASE 1

Mrs. G., about 34 years old, with chronic arthritis for one year. All the joints were affected. Her right arm was flexed at the elbow and the right shoulder was affected. She could not feed herself and had to be carried about the house. Pain was intense and she had to be given sedatives. After six months' treatment this patient made a perfect recovery and can now walk and feed herself without any inconvenience.

#### CASE 2

A girl, aged ten years, who had suffered from pain and swelling in both knees for nine months. She is now free from pain and disability.

#### CASE 3

A woman, aged 34 years, who had had severe intractable pain in the knees for about nine months. The knees were swollen and painful, on examination, and on movement grating was marked. She walked up and down stairs with difficulty. After about four months' treatment this woman was relieved of her disability completely.

#### CASE 4

A young woman, a hospital nurse, developed chronic arthritis in both knees which were painful, the condition interfering considerably with her work. Both knee joints presented marked grating on movement. She is now well.

#### CASE 5

A druggist, about 54 years of age, was affected with arthritis in both elbows and both shoulders. He had to be helped on with his coat and was compelled to give up his work. After three months' treatment he has been able to return to his employment and now suffers no inconvenience.

#### CASE 6

A young married woman who had developed chronic arthritis at the age of 7. Most of her joints were affected, but principally the knees. After about four months' treatment she looks and feels well, and is free from pain.

The following are severe chronic cases with marked deformity and fixation of the joints.

#### CASE 7

Mrs. S., a school teacher, suffered from marked chronic arthritis. On examination, the middle joints of several of the fingers of both hands were painful, red and swollen, and both ankles were much swollen. She suffered much and had to limp about and found it impossible to wear gloves. After one year's treatment she had a wonderful recovery.

#### CASE 8

A woman of about middle age had suffered from chronic arthritis for more than a year. Practically all the joints of the body were involved, but notably the knee, ankles, wrists, elbows, and shoulders. At the time of the first examination she was having an acute exacerbation. After ten months' treatment cure was complete.

## CASE 9

T. C., male, aged 53 years, a baggage man at the C.P.R. station. He developed an obstinate arthritis in the right foot, which was painful, red and swollen. In about six months practically all the joints of his body had become affected. He could not feed or dress himself, and was confined to bed. His spine was rigid and he could not move his head. His hands were useless as all the finger joints were painful, red and swollen. The elbows and ankles were in the same condition and flexed. In fact, he resembled an advanced case of myositis ossificans, as he could move only his eyes. This man was inoculated twice weekly for about fifteen months. He is now well and has returned to his former occupation.

## CASE 10

J. J., female, aged 19 years, had suffered from chronic arthritis for five years. She had been under the treatment commonly employed in these cases and was unimproved, in fact, rather worse. She could neither walk nor feed herself. On examination, the fingers, hands, and shoulder joints were all implicated; the elbow joints were flexed at a right angle; the knees were also swollen and painful; the feet were swollen and the ankle joints were painful, swollen and fixed.

After one year's treatment improvement has been marked and still continues. The pain has disappeared; her ankle and knee joints are normal to all appearance; and she has put on weight. There is still, however, considerable atrophy of the muscles. When the joints are moved grating is still very perceptible. The forearms and legs can be almost completely extended. The hands are much improved. The patient can write a good hand, can feed herself without difficulty, and can knit and do fancy work. She can bring both her hands behind her head and lock her fingers. She is continuing the injection twice a week.

## CASE 11

Mrs. P., married, aged 35 years, began to suffer from arthritis in 1924. First, the right knee became swollen and painful and soon the left. Then, the feet and ankles began to swell, and the left wrist, left elbow, and the shoulder joints quickly became involved, followed by the right wrist and elbow. The middle finger of the left hand became flexed into the palm.

The wrists became badly deformed; the elbows were flexed nearly to a right angle; partial dislocation of both radii and ulnæ took place. The toes and ankles were painful, swollen and rigid. The cervical spine was ankylosed and the head could not be moved more than half an inch in any direction. The jaw was ankylosed and she could not open her mouth a quarter of an inch. She was practically helpless, suffered agony, and had lost much weight. She was ten weeks in hospital, leaving unimproved.

After four months' treatment, she could open her mouth one and a quarter inches. The right arm, and elbow, and both shoulder joints showed marked improvement; she can use her fingers with considerable freedom. Strange to say, the dislocations have disappeared. She is putting on weight. With the lapse of a year I expect to get complete recovery.

## CASE 12

Mrs. G., aged 40 years, who had suffered from arthritis for one year. She had received the usual hospital treatment without benefit. The disease had begun with swelling of the feet and knee-joints. Her right arm was flexed at the elbow. Eventually she became quite helpless and had to be carried about the house. After four months' treatment she made a perfect recovery. She is free of pain, has put on weight, and is able to do her work.

It is unnecessary to multiply cases to support my contention further. I have 21 more cases of similar character under treatment at present. All are greatly improved and some are practically cured. Two cases of osteo-arthritis (mono-articular type) have also been under observation. One of these, after a year's treatment showed some improvement, as regards pain, and the other showed no improvement. In view of the great outgrowth of bone that occurs in these cases about the joints it would be extraordinary indeed if we could effect much with a vaccine.

Coming to technique. As mentioned before, the external lymph nodes in the case of patients with rheumatoid arthritis are enlarged and can be palpated, at least in thin subjects. A needle attached to a glass syringe is inserted into one of the nodes and a small amount of lymph extracted. From this, on culture, a streptococcus can be obtained in most cases. This organism grows preferably on dextrose blood agar or on blood serum. It hæmolyses blood agar slightly, producing a greenish halo. There is slight acid production in dextrose broth, but no gas formation. In all manipulations the usual care must, of course, be taken, to prevent extraneous contamination. In stout people it may be impossible to isolate a node for the purpose, and in such cases, if it is desired, a node may be excised under novacain. Usually, I employ in stout persons a vaccine derived from other sufferers from the disease, and with excellent results.

A vaccine is prepared from the organism in question, containing 500 millions to the cubic centimetre. This amount is given twice or thrice a week, and the dose is increased to 1.5 c.c., and, finally, to 2 c.c., at which point it is kept. The inoculation should be given deeply into the muscles of the arm or leg.

After receiving the first or second dose the recipient may complain of pain in every joint of the body. This state, however, does not persist, and after a week the patient will begin to improve and improvement will be steady. On the other hand there may be no reaction. Children stand the vaccine better than adults and may be given the same dose. Occasionally, I have tried larger doses still; with discretion, however.

In some few cases a dose of sixty-five to seventy-five minims, or even less, will produce



an intense reaction. There will be a severe chill, headache, loss of appetite, the swelling of the joints and the pain will be aggravated. Under these circumstances the patient may object to continue the treatment. It is well, therefore, to warn him beforehand that such results may follow, but with perseverance improvement eventually becomes quite noticeable. Usually, four or five days will suffice to show the benefit. If a sharp reaction of this kind can be produced once a month, the improvement will be marked.

The days of miracles are over and we cannot restore flexed joints to perfect function in a few months' time. In early cases and in the milder chronic forms we can expect to get good results fairly soon. The more long-standing cases, of, say, five years, will require from eighteen months to two years.

I would bespeak for this form of treatment a more extended trial. It is a simple matter to find enlarged superficial lymph nodes in chronic

arthritis. It is a simple matter to recover the streptococcus from these nodes and prepare a vaccine. My results have been so encouraging that I hope others of the medical profession will repeat the work and record their findings. Certainly, in the case of a disease that is so resistant to treatment as chronic arthritis is any line of treatment that promises well is worthy of adoption, until its merits or demerits have been thoroughly exposed. I do not claim that the form of treatment here outlined is all in all. Tonics, baths, diathermy, heliotherapy, massage, and appropriate passive movements, in fact, any of the customary therapeutic agencies, have their applications in certain cases, but I do think that where these are supplemented by the special vaccine treatment here described the results are immeasurably better, and in many cases a practical cure can be expected.

#### REFERENCES

1. DOUTHWAITE, *The Lancet*, 1931, 1: 785.
2. MUTCH, *Brit. M. J.*, 1931, 1: 383.
3. VIPOND, *Am. Med.*, 1915, 10: new series, 894.

### COMMON FACTORS INFLUENCING SURGICAL MORTALITY\*

By J. D. McEACHERN, M.D.,

Winnipeg

THE young man who has chosen for himself a surgical career has selected a path strewn with many pitfalls. Ever present with him when he undertakes a surgical operation is the fear that it may result in the death of his patient. To carry out such surgical procedures as he considers necessary for the cure or alleviation of his patient's condition, without unnecessarily risking his patient's life, is the problem which for him overshadows all others. On the manner in which he reacts to his first surgical fatalities will depend to a considerable extent his future course as a surgeon. He may be so borne down by his responsibilities in the matter as to give over his surgical ambitions, or he may regard these early deaths as due to chance, reminding himself that a certain percentage of patients operated upon die anyway. In other words, he may accept these catastrophes as the "will of God" and follow his surgical path to the end, attended by a high death rate. If, however, he

is a man of sufficient calibre eventually to fill a place in the ranks of good surgeons, he will take the view that surgical deaths are for the most part accidents that can be avoided by increased knowledge, and diligently set himself to discover the underlying causes. Having turned his mind in this direction, further study will convince him that patients who die after surgical operations die from real causes which may be discovered and, in most cases, avoided.

Many surgical deaths are due to insufficient study of the case before operation is undertaken. How often will one find that a longer period of observation and more detailed study will result in modification or change of the pre-operative care and also, perhaps, of the surgical procedure. There are a few cases of emergency in which prompt operative measures are necessary, but I think most of you will agree that in 90 per cent of surgical cases the operation can be carried out next week or next month just as well as next day. Haste to operate has been responsible for the death of many patients. Take

\* Read before the Winnipeg Medical Society April 17, 1931.

for example the stout middle-aged woman with gall stones. Is it not better to send her home for from three to six months with instructions to reduce her weight by twenty-five to fifty pounds, rather than to send her in to the hospital to have her gall bladder removed next morning.

It is of distinct advantage for the surgeon to take his own history and make his own physical examination, as I consider his information will be more complete than when he depends entirely on the reports of others. It puts him in a better position to evaluate the surgical risk. There should, of course, be the closest co-operation between the physician and the surgeon. I know that the surgeon can often obtain very valuable help from the physician and I think there are few physicians who will contend that their patients can never benefit by a consultation with a surgeon.

Divided responsibility is another factor that frequently leads to disaster in the care of surgical patients. No matter how important the physician's place may have been in arriving at the diagnosis, or in carrying out the pre-operative care, the decision as to when the operation will be performed and as to the operative procedure to be employed must be the responsibility of the surgeon. True, he may, and often does, get much help from the physician by discussing these matters with him, but the final decision and responsibility must be his alone. It is the surgeon's reputation that will suffer if the operation is fatal. This fact alone will tend to increase his caution. I do not mean to imply that the physician will look upon the death of his patient with equanimity, but for the reason above stated it is not likely to touch him quite so acutely as the surgeon.

The administration of the anæsthetic is of prime importance in patients who are poor surgical risks. Lack of judgment, care, and skill on the part of the anæsthetist may be sufficient to tip the scales in the wrong direction and result in an operative death. The experienced surgeon has learned to estimate the patient's condition and as he has full responsibility for the patient, any suggestion he makes to the anæsthetist regarding the administration of the anæsthetic should if possible be complied with. The choice of the anæsthetic should be made by the surgeon after conference with the anæsthetist. It should

not be made by the patient who so frequently now requests that "gas" be administered. Nitrous oxide is a dangerous anæsthetic to administer to a patient with a damaged myocardium if relaxation is required. Take, for example, such a patient undergoing a pelvic operation. She is placed in the Trendelenberg position; to produce relaxation, the anæsthetic is pushed to the point at which she becomes deeply cyanosed; up goes the blood pressure and pulse rate; this with the increased demands on the heart due to position may be sufficient to cause sudden death from cardiac failure.

In selecting the operative procedure to be carried out in an important case, the surgeon must be guided to some extent by his skill and experience. For example, in operating for gastric ulcer the surgeon of wide experience might choose to do a partial gastrectomy, while his less experienced and less skilful confrère would do well to content himself with performing the simpler gastro-enterostomy.

Multiple operations are frequently condemned as contributing to surgical mortality. I think this danger has been over emphasized. Each case must be considered on its merits, for after all it is a matter of judgment on the part of the surgeon. For economic reasons the ordinary patient does not wish to submit to two major operations where the disease can be dealt with in one. For example, one not infrequently finds disease of the gall bladder associated with duodenal ulcer. In these cases I have made it a rule to remove the gall bladder and appendix after the ulcer has been dealt with, and I have no reason for regret in this regard. It may be laid down as a rule of surgery that the simplest procedure that will meet the requirements of the case is the best one. The surgeon with what Moynihan described as "the familiar Teutonic capacity for finding a difficult way of doing easy things" is known to us all. The trait is a perpetual menace to the life of his patient. The most important of all factors in surgical mortality is the surgeon himself. The good surgeon is invariably a good craftsman, for surgery is essentially an art. The surgeon who prides himself on the scientific aspect of his calling, with a fine disregard of the art which he designates "mere mechanics" may be a good scientist but he is never a good surgeon. Failure



on the part of the surgeon in craftsmanship takes a large toll of surgical patients. Proper hæmostasis, with ligature of the vessel and not a mass of tissue surrounding it; skilful placing of sutures to properly approximate tissues without tension, these are points in mechanics, but they are of the utmost importance. When a patient who has had a gastro-enterostomy or a resection of some part of the gastro-intestinal tract performed dies in the first few days after operation, it may be that death was due to "pneumonia", as the discharge-slip states, but if the abdomen were opened it is more than probable that death would be found to be caused by hæmorrhage or the giving way of some part of the suture line.

A good exposure is more than half the battle. If the field can be made easily accessible the operative procedure can be carried out accurately without loss of time and with a minimum of trauma to the tissues. Too much emphasis can scarcely be laid on the necessity for avoiding injury to the patient's tissues. What a revolting thing it is to see a surgeon grasping large chunks of tissue in an artery forceps to stop hæmorrhage, then ligating the mass with coarse strands of catgut. Care in handling the patient's tissues pays big dividends in better healing of wounds, early and more complete return of function and in the conservation of life. The cells of the tissues are the friends and allies of the surgeon. If he is gentle with them, keeping them supplied with nourishment, especially fluids, they will turn the tide of battle in his favour in many cases in which had he traumatized them or interfered with their blood supply he would have met with certain defeat.

In abdominal surgery, the surgeon who has learned to properly pack off the field of operation has taken a long step toward protecting the life of his patient. The pack should be placed so as to protect the rest of the abdomen before the main steps of the operation are begun, and preferably not removed until these steps are completed. Take, for example, the common operation of removing the gall bladder, one surgeon carries out the operation with a good exposure, carefully packing off the operative field, removing the gall bladder with a minimum of injury to the liver and leaving the site covered with peritoneum. Another

struggles through a small or ill-placed incision; spills bile freely among unprotected loops of intestine; tears large rents in the liver and perhaps leaves behind a pack of gauze to stop hæmorrhage. Then he wonders why his patient dies of hæmorrhage or peritonitis or ileus, or if he does not die, why he runs a stormy post-operative course and continues to have pain in that region from adhesions due to local peritonitis.

The factor of time is much over-emphasized in the minds of the public, fostered, no doubt, by operators who are unduly interested in salesmanship. There are, of course, some cases in which time is very important, notably in operations on the very old and the very young, but in the ordinary case fifteen minutes or even half an hour longer is of small moment so long as the operation is carried out skilfully, with due regard for the factors above referred to. It is a depressing scene that one frequently meets with in the large centres, when surgical operations are turned into vaudeville performances, in which the surgeon operates with one eye on the clock, having apparently no regard for the sacredness of the human body, and without human feeling for the atom of humanity that has surrendered itself to his care. Some years ago I used to visit a clinic of a well known genito-urinary surgeon, whose great pride it was that he could do a prostatectomy in five minutes. As a vaudeville turn his operations were a great success; that a high percentage of his patients died in the wards from hæmorrhage and other causes seemed to be of small moment. It is to be regretted that there are men in our profession stupid enough to be impressed by such an exhibition.

There is another quality in a surgeon which, though difficult to define, is a very real factor in his death rate. There are surgeons who by intuition FEEL when their patient's life is in danger and know that they must cut short their operative procedure, unless they are willing to run the risk of a probable operative death; and there are others who tinker around in the abdomen in about the same manner as a farmer would spend a rainy afternoon tinkering around an automobile of small value. While the patient grows weaker and weaker he still, figuratively speaking, finds another nut that requires attention.

In conclusion, one must emphasize the fact that good surgery conserves the life of the patient. To avoid unnecessary operative deaths the surgeon must be a skilled craftsman, a master of his art. He must make a thorough study of his patients before operation is performed. After conference with his associates

he must assume, without arrogance, full responsibility for the conduct of the case. He should be a person of sound judgment and have a human feeling of sympathy for, and a sense of responsibility towards, those who do him the honour of placing their lives in his hands.

## A CASE OF THROMBO-ANGIITIS OBLITERANS TREATED BY BILATERAL LUMBAR SYMPATHETIC GANGLIONECTOMY\*

By E. H. Wood, M.B., F.A.C.S.,

Peterborough

IN presenting this rather unusual condition I propose first to outline shortly the condition of thrombo-angiitis obliterans, Buerger's disease, endarteritis obliterans, presenile gangrene, to give it only a few of its many names; secondly, to fit my case into this outline; thirdly, to enumerate the conditions wherein sympathetic surgery has proved of value; and, lastly, to describe the operation performed on this man with its results to date. It is but nine weeks since his operation and I must ask your indulgence in showing "results" so early, but it seems desirable to present clinical material when it is available.

### GENERAL CONSIDERATIONS

*Etiology.*—More than 50 per cent of cases occur in Jews, the remainder being fairly well distributed among other races, except that pure-blooded negroes seem to be immune. It can be said, almost positively, that the male sex alone is affected, and these between the ages of 25 and 50 years. Tobacco appears to be an exciting cause. Syphilis may be associated with the disease. Focal infection has a close association, and it is very likely that herein may lie the cause. The process seems to be one of low-grade infection, very similar to what is suggested in the case of chronic polyarthritis. There is no systemic reaction. However, the indications are that an infection or a bacterial toxic substance is the etiological factor. Exposure to cold aggravates the condition and frequently the first symptoms appear during cold weather. The affection is more prevalent in those actively oc-

cupied, and in these the symptoms are, as a rule, more acute.

### PATHOLOGY

The lower extremities are most frequently involved, and usually the larger vessels of the limbs are affected. Arteries, veins and capillaries are all involved. This is in contrast with Raynaud's disease, in which the arteries only are primarily affected. The gross changes found are early thickening of the wall, then occlusion of the vessel by a thrombus, which later becomes organized and canalized. The adventitia and perivascular tissues become indurated.

Microscopically, there are found early lymphatic infiltration of the adventitia and thickening of the intima due to proliferation of its cells, with increase of elastic tissue of the intima. This merges into thrombus formation—all a chronic inflammatory process with occasionally an acute one superimposed. The clot organizes and the whole becomes fibrosed and vascularized, a canal forming in the thrombus which permits some small degree of blood flow.

### SYMPTOMS AND SIGNS

1. *Cold extremities.*—This is usually the first sign and is associated with a clammy skin, and is similar to the condition described by Adson and Rowntree in the chronic polyarthritic cases suitable for sympathetic ganglionectomy. The limbs may be pale or cyanotic, and are numb and tingling.

2. *Early fatigue.*—This may be the first sign, particularly if the condition is developing during warm weather or in a warm climate.

\* Read before the staff of St. Joseph's Hospital, Peterboro, March 3, 1931.



The limb tires easily, with aching. This clears up with rest. As the condition develops it merges into (3) *claudication*. This is an intermittent pain in the limb brought on by fatigue. It is most variable in character, ranging from a slight cramp to a severe excruciating pain. It may even be entirely absent, particularly in patients of sedentary occupations and habits.

The onset of these symptoms is as a rule progressive and orderly, but in cases where there is sudden blocking of a substantial artery there is a sudden onset of acute pain which gradually subsides, leaving a cold, moist, pale limb.

4. *Erythromelia*, i.e., a congestive reddening of the part when lowered and return to the usual pallid condition when the limb is raised. This is usually associated with claudication, and if there is no claudication there is not apt to be erythromelia. It may be limited to the tips of the digits, or may extend well up the foot or hand.

5. *Trophic changes*.—Occasionally there may be ulceration, appearing suddenly in cases of sharp onset, but usually these trophic changes appear gradually. The chief are, excessive callus formation and corns; shallow ulcers; blistering of digits without external cause; sloughing of the skin; pigmentation of the skin; deformity of the nails; non-healing of slight wounds, such as result from trimming the corns, calluses and nails, applying corn plasters, and injuries from slight trauma; gangrene of the digits or even parts of the foot or hand.

6. *Congestive swelling* of the toes. This, with a rubor, presents a close appearance to inflammatory swelling and the part affected is apt to be incised in error. The absence of heat is helpful.

7. *Rest-pain*.—This is variable in type, also in severity. It is accentuated by trophic changes. It occurs in the digits, as a rule, sometimes higher up on the dorsum of foot or hand. Early, it consists of a constant deep-seated soreness, with numbness and burning or coldness when the foot is raised at rest. Some relief is obtained from heat or lowering the foot. Later there may be most severe pain, requiring large doses of opiates for its control.

8. *Acute superficial phlebitis* frequently appears, clouding the true condition.

9. *Edema* may be a factor in the legs, especially in the more rapidly progressing cases and those in which rest-pain is severe.

10. *Vasomotor disturbances*, brought on by cold, similar to Raynaud's disease, may appear early or late. They are not uniformly bilateral. There may be acute pallor and there may be gradations from this to cyanosis. Lewis shows that vasomotor action is due to a peripheral stimulus. The inflammatory process of thrombo-angiitis obliterans would supply such a stimulus. Leriche has shown that, when an artery is plugged with a thrombus, removal of the thrombosed section will increase the collateral circulation through the removal of the source of sympathetic stimuli. This explains the vasomotor complication of thrombo-angiitis obliterans.

11. *Absence of pulsations in peripheral arteries*.—This occurs after complete thrombosis has occurred and is then permanent. However, partial closure, causing sympathetic stimulation and vasomotor constriction, may produce periodic absence of pulsation in the dorsalis pedis artery, for example.

How does our case fit into this picture? He is of the right sex and age, 49. He is a Gentile. He uses tobacco moderately. He is a shoemaker, therefore of sedentary habits. These last two points are not predisposing causes. As to local infection, his teeth have been infected for years; his tonsils exude pus on pressure. His feet and lower legs have been cold and moist for the past five years. His condition is chronic and gradually progressing. Early fatigue has been marked, particularly during the last eighteen months. Claudication is slight, and erythromelia absent, as would be expected in a man of sedentary work and habits. Trophic changes are evident—blisters on the toes, gangrene of the skin, deformed nails, pigmented skin, a history of superficial ulceration. Congestive swelling was marked a year ago. Rest-pain has been mild but persistent. Vaso-motor disturbances have been slight, except as evidenced by periodic obliteration of a thin pulse in the dorsalis pedis artery of both feet, caused by exposure of feet to the cold and associated with an increase in the pallor. There have been tingling and burning sensations. X-ray examination was negative for arteriosclerotic changes. The blood sugar and urea are normal. It would seem that a diagnosis

of thrombo-angiitis obliterans can be substantiated.

Now a few words as to the field of sympathetic surgery. Leriche has claimed remarkable results from periarterial sympathectomy, but these have not been duplicated in the hands of others. This can be understood when it is appreciated that the sympathetic vasomotor fibres reach the peripheral vessels in the motor nerve trunks, and so cannot be interrupted in their function except by blocking motor nerves or dividing the sympathetic connection with the central nervous system. Leriche now recommends ramisection in some conditions. The Australian group, headed by Royle, commends ramisection. The English group which comprises, among others, Sargent and Gask, who kindly showed me their work recently, and also the Mayo group, appear to strongly favour ramisection with ganglionectomy. I will not attempt here to discuss the merits of the different procedures, but will simply point out the broadening field of surgery of the sympathetic nervous system. May I suggest that you refer to the February issue of the *Canadian Medical Association Journal* for further details.

The essential result obtained by thorough interruption of the sympathetic nerve-supply to a part is loss of muscle tone. This applies to both skeletal muscles, lessening spasticity in a limb so affected, and to the muscles of the artery walls, resulting in an increase of the arterial flow and an increased determination of blood to the part, with an increase in the number of capillaries but a narrowing of the capillary lumina. The procedure has been applied with success of considerable degree in the following conditions: (1) congenital spastic paraplegia, hemiplegia and chorea; (2) acquired spastic paraplegia and hemiplegia; (3) chronic constipation and megacolon, or Hirschsprung's disease; (4) Raynaud's disease; (5) thrombo-angiitis obliterans; (6) writer's cramp; (7) renal sympathetico-tonus; (8) polyarthritic conditions, and even chronic septic arthritis, as distinguished from the former to avoid the term infective, as there is a good deal of weight in favour of these former conditions being infective. The increase in circulation after sympathectomy, resulting in apparent cures, would support this infective theory, or, at least, the part wherein measures to increase nutrition are

advised as essential; (9) angina pectoris; (10) bladder disturbances of spinal origin.

Cases of thrombo-angiitis obliterans must be carefully selected, and if suitable, one can expect good results. Erythromelia appears positively not to be amenable to treatment by surgery of the sympathetic nervous system. Our case appeared particularly suitable, as no substantial artery appeared to be completely occluded.

#### TREATMENT

Just a word on medical measures. Various methods are advised, and as is usual under such circumstances none are very helpful. Foreign protein injection seems to be about the best procedure. Periarterial sympathectomy, as previously suggested, has not given the results expected of it. Ramisection, or ganglionectomy, is to be preferred in suitable cases.

Lumbar sympathetic ganglionectomy was the procedure carried out in this man. The results as far as his limbs are concerned appear excellent. His feet and legs are warm. The nail growth as seen at the base of his nails is smooth and pink. The skin is fast returning to normal. He complains no more of pain, tingling or discomfort. He walks well and has been sawing and splitting wood, and this within a few weeks of a pre-operative period of 18 months, during which short walks on crutches were the limit of his activity. He has also gained ten pounds. His most obstinate constipation is completely relieved.

#### OPERATION

This was done under spinal anaesthesia with novocaine, through a midline incision extending from 1 inch above the pubes to 3 inches above the umbilicus. The posterior parietal peritoneum was incised below and lateral to the pelvic colon. The colon, ureter and posterior peritoneum were lifted off the posterior abdominal wall up to and exposing the left side of the spinal column at the level of the second, third and fourth lumbar bodies. The lower kidney pole was retracted upwards and the aorta laterally, exposing the sides of the vertebrae. The sympathetic cord was raised by means of a hook, the second, third and fourth lumbar ganglia identified and removed by cutting their rami and the cord above and below. There was practically no bleeding. The structures were then allowed to drop back into their



normal position. Next, by displacing the small bowel to the left and upward, the posterior parietal peritoneum was exposed over the vena cava and a vertical incision made lateral to the vena cava at the level of the second, third and fourth lumbar vertebrae. The vena cava was retracted medially and the ganglion exposed and removed, as on the left side. The fourth ganglion was beneath the perivertebral veins, but was easily slipped out. There was a minimum of bleeding. The abdomen was closed without suturing the incisions in the posterior parietal peritoneum. This was omitted by necessity rather than design. The perfect relaxation of the spinal anaesthesia began to wear off. An effort was made, by giving ether, to obtain better exposure, but in vain. As a result of this experience it might

appear that lumbar ganglionectomy would be a much more difficult procedure under inhalation anaesthesia. There appear to be no ill effects from the omission to close the post-parietal peritoneum.

The post-operative reaction was moderate. The wound healed well. The man was discharged on the twenty-first day, walking out of the hospital with his crutches over his shoulder.

This man was seen just before going to press—8 months after operation. He has gained 22 lbs. in weight, from 125 to 147. He has worked on the city relief labour gang since May 13th. There is still some pigmentation of the skin over the dorsum of left foot—otherwise he appears normal. His general health and feeling of well being has greatly improved.

## CHRONIC NASO-PHARYNGITIS AND CHRONIC BRONCHIAL INFECTION

BY WM. W. PRIDDLE, B.A., M.D.,

*Toronto*

THIS paper is based on the study of a group of patients presenting manifestations of chronic bronchitis and early bronchiectasis, met with in out-patient and private practice. It is additional to a series of hospital cases studied in 1927-28<sup>7</sup>.

Mullen and Ryder<sup>4,5</sup>, in 1921, were among the first to demonstrate the intimate relationship between upper and lower respiratory infections. Dennis<sup>2</sup> reported a high incidence of chronic sinusitis in patients with chronic bronchial disease. He found a polypoid condition of the antra 45 times, as compared with 28 with free pus, and made the important observation of the frequent occurrence of influenza in the past history of these patients. Schwartz and Weiner<sup>8</sup>, in 1927, stated that they found paranasal sinus infection in a large percentage of their series. Smith<sup>9</sup> recently mentioned the relationship of chronic naso-pharyngitis to chronic bronchial disease. As has been demonstrated by Mullen and Ryder, the disease process may have spread from the naso-pharynx by several routes. Direct extension appeared to play the major role in cases with rapid development. Certain patients presented a history of one or more attacks of laryngitis which would seem to bear out this contention. Inhalation was another method by which the infection could have reached the lower

respiratory tract. Lymphatic absorption probably played no small part in the spread of the disease to the walls of the bronchi. Most cases had a definite cervical adenitis and the roentgenogram revealed enlargement of the peribronchial glands. This, however, may have been only an evidence of the infectious process present in the areas drained by those lymph glands. The possibility that the naso-pharyngeal and bronchial infection occurred at the same time, during the preceding acute infection, such as influenza, must be considered.

In our study there have been a number of patients in whom the causal factor appeared to be a chronic naso-pharyngitis. Most of these infections followed one or several attacks of influenza. A few cases dated from whooping cough, measles and scarlet fever. The tonsils had either been previously removed or showed little clinical evidence of involvement as compared with the mucous membrane of the naso-pharynx. Examination of the accessory nasal sinuses by the usual methods failed to reveal any marked infection from this source. In the typical case following influenza the patient gave the history that he had had several attacks of fever, general malaise and aches, over a period of a few years. The accompanying sore throat was

always described in such a manner as to indicate that the naso-pharynx and not the tonsillar area was the seat of the inflammation. After each attack the throat slowly improved but never completely returned to normal. There was a little soreness occasionally on rising and the patient had some discharge from his naso-pharynx during the day, and a larger quantity in the morning. Gradually the sputum became more profuse and the patient felt he was coughing up the discharge from his chest. Frequently asthmatic breathing was noticed, particularly after sleeping, until he was able to clear his bronchi of the offending material. Occasionally this was severe enough that the patient was awakened several times during the night with coughing and difficulty in breathing.

The naso-pharynx presented the usual picture of a chronic inflammation of the mucous membrane. The surface appeared swollen and dark red in colour with considerable "piling up" of tissue in the more severe cases. A variable amount of purulent or muco-purulent exudate was adherent to the mucous membrane. The tonsillar areas showed some evidence of infection but usually not so severe as that present in the naso-pharynx. The physical findings in the chest were variable. At times, particularly in the evening, physical signs were entirely absent. On other occasions, auscultation revealed rhonchi throughout the chest or medium and coarse moist râles over one or both bases or interscapular spaces of the chest, more marked after the patient had coughed. Areas of hyperresonance or dullness could frequently be demonstrated over the affected regions. Such mild cases were not subjected to lipiodol injection to prove the diagnosis of bronchiectasis. However, it was felt that chronic bronchial infection, weakening the musculature of the bronchi, and cough, causing increased intrapulmonary pressure, must have resulted in some degree of bronchial dilatation. Ochner<sup>6</sup> has demonstrated bronchiectasis in over 90 per cent in a large series of patients suffering from so-called chronic bronchitis. Archibald and Brown<sup>1</sup> have shown experimentally that cough may spread material throughout the bronchial tree if the masses are not too large. Thus it is only necessary for the infectious discharge to reach the larger bronchi, when the mechanism of cough spreads it widely through the finer branches. They have also proved that in the presence of bronchospasm cough is more effective in driving the infected material into the distal

bronchi. Spasm is often quite evident in these cases particularly after the subject has been a few hours in the recumbent position. This is usually relieved after the patient has coughed up the bronchial secretions. Harkavy<sup>3</sup> has demonstrated that there exists a spasm-producing substance in the sputum of asthmatic individuals not present in the expectoration of patients with other chest conditions. In the group of cases under consideration, the rapid results of treatment indicate that the bronchiectatic process had not progressed to any marked degree of fibrosis or denudation of the mucous membrane of the bronchi with permanent damage. Repeated sputum examinations helped to exclude the possibility of tuberculosis. These patients did not appear acutely ill and had no fever. They all had a pale, sallow complexion which improved following treatment. Frequently they complained of becoming tired easily and disturbances of sleep due to spasms of coughing and wheezing.

The treatment of this affection was directed more to the condition of the naso-pharynx than to the bronchi. Medication applied to the naso-pharynx has been found effectual when used in liberal quantities by the dropper method through the nostril, with the head bent well back over the edge of the bed. When the medication reached the pharynx the patient sat up and expectorated the excess. Silvol, in five to ten per cent aqueous solution, combined with two drachms to the ounce of three per cent ephedrine hydrochloride, has been used most often. On several occasions a patient has expectorated, or discharged from his nose, a sufficient quantity of material to make one suspect that an infected sinus had been missed in the diagnosis and had drained as a result of the medication. For the bronchial condition a combination of ephedrine, creosote and a stimulating expectorant has been employed early in the course of treatment. Postural drainage, such as elevation of the foot of the bed, has also been used. At times ultra-violet light therapy and high vitamin diet seemed to hasten recovery from the condition. Tonsillectomy and adenoidectomy alone have been disappointing in their effect on the general condition. Improvement of the bronchial affection followed very closely the naso-pharyngeal condition. The response to treatment has been strikingly rapid.

Three case histories, one of a child and two of young adults, have been selected to illustrate the type of condition under discussion.



## CASE 1

G. R., a male, 11 years of age, had always been in good health up to the age of five years, when he had whooping cough. Following this he continued to cough and "rattled in the chest". The tonsils were removed at six years of age. The cough improved for a time, then gradually became worse. This had been treated with cough mixtures. The boy had had several attacks of influenza during the past five years, each leaving the cough a little worse. On September 26th, he awakened five times during the night with a spasmodic cough which was relieved by expectoration. His mother estimated the amount of sputum at several ounces each day. The child said he felt well. The chest had rhonchi throughout and coarse râles at both bases and interscapular spaces. The tonsils had been cleanly removed. The naso-pharynx was red and swollen and presented scattered patches of muco-purulent exudate. There was no evidence by transillumination of clouding of the sinuses. The temperature and pulse were normal. The complexion was sallow. Nasal drops of five per cent silvol and three-quarters of one per cent ephedrine were prescribed, also an expectorant mixture with ephedrine. The mother was instructed to elevate the foot of the child's bed at night. On October 1st she reported that the boy was sleeping all night, had less sputum and his appetite had improved. The chest had a few râles and rhonchi at the bases posteriorly. His colour had improved. The naso-pharynx was less congested and showed no adherent exudate. On October 15th the child was much improved and had very little sputum. A few râles were heard at the base of the right lung after coughing. The naso-pharynx showed a few congested areas. Medication was continued at lengthened intervals. On November 3rd he reported that he had had no cough or expectoration recently. He had gained six pounds since the beginning of the treatment. The naso-pharynx appeared practically normal. The chest was clear throughout. Medication was discontinued.

## CASE 2

A. B., a male, 28 years of age, had had a cough and expectoration for one and one half years after an attack of influenza. He remembered having had a severe sore throat at that time. He had had marked asthmatic breathing recently, particularly during the latter part of the night. There was no family history of asthma or allied conditions. Competent laryngologists had examined his sinuses and reported no pathological change. The tonsils were removed, but his condition progressed unaltered. On October 15th, he woke up several times during the night wheezing, and was relieved only when he expectorated. He estimated the amount of daily sputum as about one ounce. He felt worse in the morning than in the evening. His complexion was sallow; the temperature and pulse were normal. The chest was hyper-resonant, with rhonchi throughout. At the bases posteriorly there were medium and coarse râles, more marked after coughing. The naso-pharynx was red and cedematous with adherent muco-purulent exudate. The treatment was practically the same as in the former case. On October 22nd, the patient reported that he was markedly improved. He slept five or six hours without waking and had had less difficult breathing. There were a few rhonchi in the chest and numerous medium râles at the bases of the lungs. The sputum was about the same in amount. The naso-pharynx was still quite congested. The drops had not been used satisfactorily. On November 3rd the patient was markedly improved. The naso-pharynx was much less congested and there was no adherent exudate. No râles or rhonchi were heard over lung fields.

## CASE 3

R. W., a male, 24 years of age, had had a cough for a number of years and expectoration for the past two years. He had influenza in 1925 and again in 1926. Expectoration began after influenza in 1928. In January, 1929, a roentgenogram of his chest showed an increased hilus shadow. General treatment during the next 18 months produced no apparent improvement in his condition. Repeated sputum examinations have been negative for tubercle bacilli. On July 23rd, he was coughing up about one and one-half ounces of sputum daily and had soreness throughout his chest. His appetite was indifferent and he had a feeling of general lassitude. His complexion was sallow. Chest examination in the evening revealed some harsh breathing at the base of the right lung posteriorly. The naso-pharynx was red, "piled up", and showed a muco-purulent exudate adherent to the surface. The usual treatment was prescribed. On August 23rd, he appeared better. His chest was clear; the naso-pharynx was still congested in areas, but was improved. On September 15th he had very little sputum at any time. The naso-pharynx was almost normal in appearance. Routine treatment was discontinued, but he was advised to occasionally use the nasal drops. On November 3rd he stated that he had felt in the best of health since the time of the last examination. He had no expectoration. His naso-pharynx appeared quite normal. All medication was discontinued.

These three case reports have demonstrated certain points that were outstanding in the group of the cases studied. In each instance the bronchial condition has been traced to a chronic naso-pharyngitis which followed an acute infection, such as influenza or whooping-cough. The response to medical treatment of both the naso-pharyngitis and the bronchial infection has been most gratifying

## SUMMARY

1. A certain number of cases of chronic non-tuberculous bronchial disease are associated with a chronic naso-pharyngitis. This condition can usually be traced to an acute infection such as influenza, whooping-cough, measles or scarlet fever.

2. Conservative medical treatment of the etiological focus as well as the bronchial condition has produced uniformly good results.

## REFERENCES

1. ARCHIBALD AND BROWN, *Arch. Surg.*, 1928, 16: 322.
2. DENNIS, *Ann. Otol., Rhinol. & Laryngol.*, 1924, 33: 451.
3. HARKAVY, *Arch. Int. Med.*, 1930, 45: 641.
4. MULLIN AND RYDER, *Laryngoscope*, 1921, 31: 158.
5. MULLIN, *Ann. Otol., Rhinol. & Laryngol.*, 1921, 30: 683.
6. OCHNER, *J. Am. M. Ass.*, 1929, 93: 188.
7. PRIDDLE, *N. Y. State J. Med.*, 1930, 30: 1077.
8. SCHWARTZ AND WEINER, *Am. Med.*, 1927, 22: 622.
9. SMITH, *Canad. M. Ass. J.*, 1930, 22: 194.

## EXPLORATION OF THE ABDOMEN BY X-RAYS\*

By C. W. PROWD, M.B.,

*Department of Radiology, St. Paul's Hospital,  
Vancouver*

## IX

A GENERATION ago there was no x-ray.

To-day it is the biggest single factor as a diagnostic aid in all abdominal conditions. That a previously unknown physical agent should be thus adapted to diagnostic purposes is remarkable. Other discoveries have thrown great light on a single problem, have revolutionized thought and practice, but none have been so general in their application nor so widely useful to the internist and diagnostician.

The x-ray was first used in fractures and lesions of the osseous system. Its use gradually spread, till to-day it is rare indeed that any major problem is attacked and a solution found without the aid of this physical agent. The blind eye of twenty centuries has been opened and its vision promises to be more acute and accurate than that of all its predecessors. Not one but all of the various abdominal organs may be visualized, either directly or indirectly.

Years of effort have given a high degree of accuracy in conditions covering a wide and important field. Exploration by x-rays forestalls examination by other methods. No other means affords the same accuracy and certainty. It may even exceed inspection by the surgeon. Pre-pathological conditions and disease in its incipency are detected, as in mal-function of gall-bladder, stomach, bowels, etc. It has an important bearing on early diagnosis and will loom large as a factor in preventive medicine.

There are yet many unsolved problems to be attacked, but the accomplishment of the past promises well for the future. We know the relative frequency and location of œsophageal lesions, benign and organic. Cardiospasm and cancer, especially of the cardiac end of the œsophagus, are confusing, but the border-line

case vanishes as the examiner becomes more expert.

We have learned that the big stomach, with so-called dilatation and prolapse, is peculiar to and characteristic of the asthenic type and that it means no more than a long nose or big foot, provided that it functions properly. Not more than 15 per cent of all patients complaining of gastric symptoms have organic lesions of the stomach or duodenum; in 85 per cent the stomach is a clearing-house for symptoms other than those of cancer or ulcer, and in 60 per cent of all cases presenting gastric symptoms the cause for the dyspepsia is not due to functional or organic conditions of the stomach, duodenum or gall-bladder. Duodenal ulcer is five times as common as gastric ulcer and gastric cancer twice as frequent as gastric ulcer. Two-thirds, or 66 per cent, of all organic gastro-duodenal lesions are duodenal ulcer, while cancer of the duodenum is the rarest of lesions.

The majority of gastric and duodenal ulcers give typical histories and characteristic findings on gastric analysis. It is well to emphasize, however, that many do not. It frequently takes a searching and careful history and a combination of x-ray, gastric analysis, and clinical findings to arrive at conclusions. One cannot over-emphasize the necessity for cooperation and coordination of all findings, also the value of recheck examinations. While the x-ray examination is highly diagnostic and valuable it should never be accepted as the sole means of diagnosis.

Gastric cancer is insidious in onset and indefinite in symptoms. Over 90 per cent of cases are diagnosed too late for curative treatment. Early signs by x-ray are not easy of recognition but must be sought for and interpreted if they are to be of material assistance, especially so since gastric carcinoma is usually in a resectable portion of the stomach.

\* This is the ninth in the series of articles published in the *Canad. M. Ass. J.*, dealing with physio-therapy. The preceding papers will be found in 1931, 24: 263, 409, 539, 679, 831; and 25: 65 and 311.



Gastric obstruction due to pyloric ulcer is a good sign. It is characteristic, has decided symptoms, brings the patient early for observation and gives excellent results following operation. The majority of duodenal ulcers heal readily on medicinal treatment and re-establish free function by the pyloric orifice even after gastro-enterostomy. Post-operative recurrences and return of symptoms depend for localization and determination of function almost entirely on x-ray.

The roentgen ray has questioned or proved the accuracy of many statistics. Thousands of cases give decided values. The prominence of certain diseases has been lost and the emphasis placed on more obscure conditions. The more actively an organ functions the more likely is it to become diseased. Again many diseased conditions are the result of the interplay of affected organs,—dual and triple states of malfunction. The liver and colon are often proved double offenders and the innocent appendix relegated to a minor part.

The liver and gall-bladder are frequent sites of disease. Opaque dye, administered orally or intravenously, has been of striking value in estimating liver and gall-bladder function and disease. Gall-bladder disease is the most frequent organic cause of dyspepsia, pain and gastric symptoms. It is the source of trouble in about 25 per cent of all cases and represents a higher percentage than the combined lesions, organic and functional, of the stomach and duodenum. The frequency of gall-bladder and colon disorders is more and more emphasized. They are closely inter-dependent. A constipated gall-bladder and a constipated colon constitute dual and parallel conditions.

The secrets of the small and large gut are still largely unexposed or misinterpreted. No field offers more for research than the twenty-five feet of small and large intestine. They still hold many secrets and remain the dark continent of the abdomen with their intricate uncharted coast lines. True, we find obstructive and irritating adhesions and lesions, but anomalies of function are often lost or not understood. The deviations from and within normal are given many and varied interpretations. They present many problems. Cancer, diverticulitis—a favoured indisposition of fat, obesity, and colitis are common lesions and

fairly well defined as to location and type, but for more light and definite knowledge we await further study.

Roentgen study is invaluable to the urologist. Definite data are given by combined pyelographic and roentgen study. Information is decisive and accepted. Kidney stone, renal disease, ureter and bladder disease are all clearly indicated by proper combined examination. The recent development of kidney examination by intravenous injection of uroselectan, an opaque dye visualizing the kidney in a manner analogous to visualization of the gall-bladder, gives promise of valuable diagnostic aid. It will be of great help and is a comparatively simple procedure. It is an aid to, but not intended to replace, the regular pyelographic examination.

The osseous structure of the abdomen, pelvis and spine are frequent sites of bone lesions or fracture. The many types of arthritis, anomalies of position or alignment, bone disease, and malignant involvement are clearly differentiated. One must mention also the examination of the female pelvic organs by lipiodol and kindred opaque substances, and the information they give as to the normal and abnormal states of the pelvic viscera. There still remain the spleen, pancreas, blood-vascular and muscle tissues. These will be differentiated. They present some problems for the future which will find solution, as have the others.

No field is too obscure, no effort too great, no problem too difficult for the realm of the x-ray. It needs a Jenner, Hunter or Simpson to give it periodical impetus and its workers need further protection. Never has sacrifice been so great in human lives as in this new science. There is need to-day of greater precaution and care, recreation and limited hours. Too careful provision is not likely. This is apt to be underestimated and under-provided for in our Canadian institutions.

Entry of a new thing in medicine must overcome the innate conservatism and inertia, but, once having established a place, it is assured of a devotion consistent and worthy of its best efforts. The future is big with promise, the past replete with accomplishment, the present a high hour of endeavour. Men and material, medicine and physics, have worked together to solve and to throw light on the great unknown:

The closed abdomen is revealed in the new light of twentieth century science.

#### COMMENT

DR. W. M. CARR (Victoria, B.C.). Discussion of Dr. Prowd's paper is pleasant and, bearing in mind his subject, illuminating. That our field of endeavour is broadening and improving is well shown by the maintained and increasing interest in x-ray diagnosis on the part of those pathologists with whom I have worked. I mention the pathologist as he is liable to be satisfied that his specialty is the only one which from a diagnostic point of view is of real value.

X-ray examination is a most useful agent in preventive medicine. At first one's greatest pleasure is to find a definite lesion which when treated relieves the patient of symptoms. Later one feels most pleased when major lesions are ruled out and by elimination it can be shown that a relatively minor cause exists such as tonsillar, paranasal, peri-dental or other readily accessible focus of infection.

How very frequently the epigastric area is positively demonstrated as the storm centre of various extraneous bodily ills, organic lesions being ruled out from stomach, duodenum and gall-bladder. It would seem to be a fact that the incidence of gastric and duodenal ulcer (particularly the former) is much lower than previously believed and also that this varies in different parts of the country.

It is pleasant to note that, characteristically, Dr. Prowd has not concluded that uroselectan replaces other methods of urinary tract examination. There does not at present seem to be reason for believing that this substance can replace the use of sodium iodide or bromide as previously employed, although it does give additional information *re* function.

Speaking generally, those working with x-ray and radium are of value in direct proportion to their experience. Hence the point that they be conserved for long periods of activity seems to me to be well taken.

I do not think the use of oxygen or carbon dioxide intraperitoneally should be omitted in selected cases. Inducing pneumo-peritoneum is a safe method of examination if certain definite contra-indications are avoided. When the trans-abdominal route is chosen one should avoid inserting the needle into a large blood vessel, a blood vessel over-lying a mass or held by adhesions, or into the bowel held by adhesions. Examination with the aid of an opaque meal is sometimes necessary in order to find a safe location as when there has been a laparotomy. When the uterine route is selected one must be sure of a clean cervix and uterus and avoid pressure in excess of 220 mm. Hg.

Knowing the history and progress of our work one cannot fail to agree that opportunity, endeavour and time will show the increasing usefulness and scope of x-ray work.

### Case Reports

#### A CASE OF CANCRUM ORIS FOLLOWING TYPHOID FEVER; WITH PLASTIC REPAIR\*

BY S. J. USHER, M.D., AND D. E. ROSS, M.D.,  
*Montreal*

The prognosis of these gangrenous lesions of the skin is so poor that it seemed of interest to report a case which made an excellent recovery and was left with a good cosmetic result following a successful plastic repair operation. Circumscribed gangrene of the skin in other situations than those threatened by bed-sores occurs with extreme rarity and only in greatly reduced individuals, and it is then of ominous significance. Abt<sup>1</sup> describes cancrum oris as a specific infectious disease of the tissues of the mouth caused by the symbiosis of Vincent's spirochæte and the *B. fusiformis*, and characterized by ulceration and gangrene of greater or less extent and depth. It seems to require for its development a decided lowering of the general resistance, combined perhaps with an especial neglect of the teeth. It is more likely to develop after typhoid fever than after any other disease,

except measles. Based upon tables of 1,700 cases of typhoid fever, Keen<sup>2</sup> noted the presence of noma 9 times; 5 of the 9 patients died, and the result in one is unrecorded. Adams<sup>3</sup> noted cancrum oris in 4 cases, all fatal, in a study of 337 cases in children. In a later study of 550 cases, he<sup>4</sup> noted 5 cases of ulceration of the mouth, only one being gangrenous. Morse<sup>5</sup> in a similar study of 284 cases notes no complications of the mouth. There were similar findings by one of us<sup>6</sup> in a study of 175 cases in children. Among the large number of cases that came under Osler's<sup>7</sup> observation he only saw one case in a child that could be considered as noma.

During the World War, at the British Isolation Hospital in France<sup>8</sup> during the first two years of its existence, there was only 1 case of noma, and this fatal, in 1,118 cases of typhoid fever. Soisa<sup>9</sup> described two cases of noma complicating typhoid fever, only one of which recovered. The fatal case was that of a girl of 15 years, who had been ill three weeks before admission to the hospital and died two weeks later of a terminal broncho-pneumonia. She developed a noma of the cheek about ten days before death, and was given four intravenous injections of salvarsan with no improvement. The other case was that of a girl of nine years

\* From the Children's Memorial Hospital, Montreal.



who developed a noma of the right cheek during the third week of a severe attack of typhoid fever. There were also ulcers over the thorax and abdomen, especially along the course of the intercostal nerves. Three intravenous injections of neo-salvarsan were given at 5-day intervals with no improvement. The noma extended to the other cheek, and involved the left superior maxillary bone. The ulcers on the thorax and abdomen spread. The author then tried a 10 per cent copper sulphate solution locally, and used 5 per cent as a spray to the throat twice a day. It had been previously shown by others that this prevented the development of the fusiform bacilli. However metastatic gangrenous areas appeared over the body and a 10 per cent calcium solution was given intravenously daily, to stimulate phagocytosis, and for its antitoxic properties. On the second day after this treatment arrest of the process was noted, and on the 15th day the patient had sufficiently improved to be transferred to the surgical department, where a plastic repair was done on the cheek. This author disapproves of cauterization for fear of spreading the infection. He advises copper-calcium treatment, or copper-neosalvarsan, according to the type of bacteria predominating. Berger<sup>10</sup> describes a case of gangrenous stomatitis in an infant aged 16 months, which did not follow any other illness. The gangrenous area was extensive, involving more than one-half of the right cheek, and the angle of the mouth. There was also sloughing of the gums. Three intravenous injections of neoarsphenamine were given over a period of 10 days. Potassium chlorate was given by mouth in a dosage of 5 grains 5 times a day. The mouth was cleansed with hydrogen peroxide followed by tincture of myrrh. Ten per cent silver nitrate was applied twice. A definite line of demarcation ultimately formed and the gangrenous area was removed by cautery. The patient made an uneventful recovery. A small amount of fibrous contracture was left about the angle of the mouth. Noma has also been described in the new-born by Benedict.<sup>11</sup> Melzer<sup>12</sup> described the good effects of insulin injections in a child with noma. A somewhat similar case to ours, with recovery, and subsequent repair of the defect by a plastic operation, was described by Goodall<sup>13</sup> recently. Most of the recent pædiatric text-books agree in advising early and

wide excision of the noma, with cauterization of the edges.

#### CASE REPORT

The patient was a boy, 4½ years of age, who was admitted to the hospital on November 26, 1930, on about the 16th day of a very severe attack of typhoid fever. He was one of a family of eight children, seven of whom became ill with a very severe form of typhoid fever, with unusual complications, and four of whom died. Suffice it is to say here that this child on admission presented a very poorly nourished appearance, appeared very drowsy and ill, and had a severe cough. The lips were excoriated and dry, the tongue dirty and coated, the breath foul, and the tonsils very large and congested, with considerable mucus in the throat. Numerous moist râles were heard all over the chest. The liver and spleen were palpable, and there were scattered rose spots over the abdomen. On November 28th, two days following admission, moderate swelling of the right cheek, with a small black ulcerated area on the inside of the cheek, was noticed. A direct smear showed what appeared to be Klebs-Loeffler organisms, in association with other bacilli, diplococci and cocci in chains. A report, three days later, on the throat culture was negative for Klebs-Loeffler bacilli. Because of the history of three brothers dying of laryngeal diphtheria complicating



FIG. 1.—Pre-operative condition on November 30, 1930.

typhoid fever, he was given 1000 units diphtheria antitoxin. He was also given 0.15 gr. of novarsenobenzol intravenously; the affected area was painted with a solution of novarsenobenzol every four hours, and hot fomentations were applied. The ulcer kept enlarging on the inside of the cheek, and on November 30th, he was given 0.2 gr. novarsenobenzol intravenously. On December 2nd, the ulcer opened on the inside. There was not much pus, but a large amount of necrotic tissue was visible. The following day the cheek began to discolour on the outside, and a small area of necrosis soon appeared. On December 4th, this necrotic area had enlarged to nearly 2 cm. in diameter (see Fig. 1). A smear from the ulcerating edge showed spirochaetes and fusiform bacilli in greater numbers. On December 6th, the necrotic mass was excised, under light ether anaesthesia, the excision extending well beyond the outer limit of the necrosis, the margins were then cauterized, as was also any gangrenous tissue inside the mouth. Subsequent to the excision sponges soaked in gentian violet and acriflavine, of each 1 per cent, were packed into the opening, alternately with sponges soaked in novarsenobenzol.

December 13th, as there was no improvement in the appearance of the wound, it was decided to discontinue the novarsenobenzol, and concentrate on the use of gentian violet and acriflavine, the latter being applied, both by means

of packs and with a syringe along the gums. By December 19th, there was a definite improvement in the child's condition, the temperature being normal, the pulse 100 to 110. The wound itself looked cleaner, and there was no further extension of the gangrenous process. On December 27th the gentian violet and acriflavine were discontinued, as the gangrenous process appeared to be overcome. The bone of the lower



FIG. 3.—The tube graft on February 8, 1931.



FIG. 2.—Post-operative condition on December 19, 1930.



FIG. 4.—The tube filling the defect.



jaw was exposed, and there was a purulent discharge from this, and from the gums and cheek. Moist dressings were therefore applied every four hours for ten days, when the discharge had ceased, with the exception of that from the bone. This latter stopped after the removal of a small sequestrum January 15, 1931.

On January 23rd, the first step in a plastic repair of the defect in the cheek was undertaken. This consisted in making a flap of full thickness on the anterior chest wall, running in an oblique direction down towards the xiphoid of the sternum. Ten days later the flap was tubed (see Fig. 3). On March 3rd it was freed at the distal end from the chest wall, and on April 14th, as the vitality of the graft appeared to be excellent the defect in the cheek was plugged by swinging the distal end into the opening, and suturing it in this position (see Fig. 4). The opening on the buccal side was lined with skin from the graft. On May 9th, the graft was disconnected subsequent to the application of an elastic band for forty-eight hours. It was cut straight across at the junction of the middle and distal third, the redundant tissue removed, and the skin of the graft sutured flush with that of the face. The ultimate cosmetic result is as shown in Fig. 5. Nothing was done to remedy the fibrous ankylosis of the jaws, other than freeing adhesions at the last stages of the grafting. The patient is now able

to open his mouth about one-half an inch, and can chew meat and hard biscuits.

#### SUMMARY

Although it is impossible to draw any definite conclusions from the literature, and from the above reported case, as to which form of treatment is most efficacious, we feel that wide excision and local applications of gentian violet and acriflavine proved to be the most important factors in the recovery of this patient.

#### REFERENCES

1. ABT, *Abt's Pediatrics*, 1924, 3: 78, Saunders, Phila.
2. KEEN, *Surgical Complications and Sequels of Typhoid Fever*, Saunders, Phila., 1898.
3. ADAMS, *Arch. Paediat.*, 1904, 21: 81.
4. ADAMS, *Am. J. M. Sc.*, 1910, 139: 638.
5. MORSE, *Boston M. & S. J.*, 1896, 134: 205.
6. USHER, *Canad. M. Ass. J.*, 1927, 17: 1486.
7. OSLER, *Typhoid and Typhus Fevers*; *Nothnagel's Encyclopedia of Practical Medicine* (Am. Ed.), Saunders, Phila., 1910.
8. WEBB-JOHNSON, *Surgical Aspects of Typhoid and Paratyphoid Fevers*, Oxford Med. Pub., 1919.
9. SOISA, *Policinico* (sez. prat.), 1929, 36: 1099.
10. BERGER, *Am. J. Dis. Child., Soc. Trans.*, 1927, 33: 542.
11. BENEDICT, *Arch. f. Kinderheilk.*, 1930, 91: 105.
12. MELZER, *Deutsche med. Wchnschr.*, 1929, 55: 1806.
13. GOODALL, *Brit. J. Child. Dis.*, 1930, 27: 204.

### AVULSION OF THE LESSER TROCHANTER OF THE FEMUR

BY J. S. McEACHERN AND H. N. JENNINGS

Calgary

A healthy athletic boy, sixteen years old, was running to catch a street-car. He slipped on some ice, caught his right foot in a rut, and saved himself from falling by a violent backward jerk of the body. There was immediately severe sharp pain in the right groin and the adjacent part of the thigh. After a few minutes he was able to walk to the street-car, holding the right hip and leg stiff, and sliding the right foot along the ground. When seen at home, about half an hour later, the patient was sitting on a bed, bent forward at the hips, and with the right foot pressed firmly on the floor. In that position there was very little pain. Attempts to get him to lie down were unsuccessful until the right thigh was held flexed against the abdomen. Then the right leg was passively extended without any very severe pain.

Examination showed no deformity of the hip and no swelling or ecchymosis in that region. There was marked tenderness on deep pressure over Scarpa's triangle, and on the posterior medial aspect of the thigh immediately below

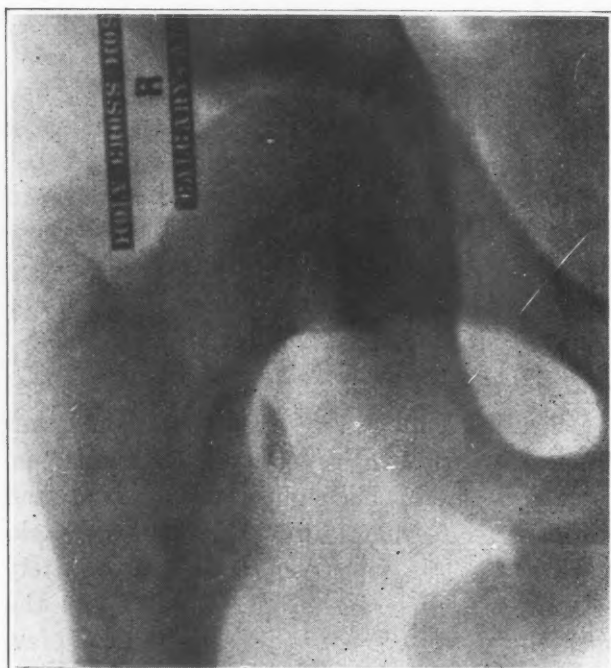


FIG. 5.—The final result.

the gluteal fold. Active flexion of the hip was apparently impossible, but passive flexion, with the patient resisting slightly, gave relief from the pain. With the thigh flexed, movements of the hip-joint were free and almost painless.

Diagnosis was made by the x-ray. The plate showed the lesser trochanter of the right femur to be torn loose at the epiphyseal line and drawn upward and forward about 3 cm.

The patient was put to bed and the right leg suspended in a bent Thomas splint, hung from a Balkan frame, with the hip flexed to about 100 degrees. During the first day he suffered occasional stabs of pain, but after that there was no discomfort. After four weeks in this



position the leg was lowered by degrees, and after another week the patient was allowed up with crutches.

A second plate taken at this time showed the epiphysis drawn back into partial contact with the diaphysis, about 2 cm. from its proper position, and good bony union had apparently occurred. The fibres of the iliopsoas tendon, which have their insertion in the periosteum of the femur below the lesser trochanter, in healing had apparently drawn the epiphysis back nearly to its normal position. Six weeks later the boy complained of no disability whatsoever.

Avulsion of the lesser trochanter of the femur is a rare injury. Metcalfe<sup>1</sup> collected from the literature 11 cases of avulsion in boys

and youths, 4 cases of fracture in older men, and added 2 of his own. Ross<sup>2</sup> added 2 more. Since the x-ray has come into common use cases have been reported more frequently, and we have been able to bring the total reported cases to 48, including our own.

Common symptoms are pain in the groin, inability to flex the thigh, and, usually, inability to walk. A few were able to walk a short distance with the hip held fixed. Lewin<sup>3</sup> emphasizes the inability to further flex the thigh while sitting on a table with the feet hanging over the edge, and the inability to bend forward from the hips from an erect stance and pick up an article from the floor. There is always tenderness on pressure over the lesser trochanter. Swelling and ecchymosis have appeared only in cases of fracture in adults.

Treatment by fixation of the hip in flexion has given good results in nearly all cases. Two men over eighty years died. The cause for this readily suggests itself. One youth developed an infected hæmatoma, followed by tetanus, and died. One patient had operative fixation done and he died.

#### REFERENCES

1. METCALFE, *J. Am. M. Ass.*, 1915, 64: 1234.
2. ROSS, *Ann. Surg.*, 1917, 65: 241.
3. LEWIN, *J. of B. & J. Surg.*, 1928, 10: 339.

### TRAUMATIC ANEURYSM OF THE SUBCLAVIAN ARTERY AS A LATE COMPLICATION OF FRACTURED CLAVICLE

BY E. H. CAYFORD AND F. J. TEES,  
*Montreal*

Treatment of simple fracture of the clavicle is considered to be a simple affair and is rarely accompanied by any sequelæ of importance. But when we bear in mind the anatomical relationship to the large vessels and nerve cords passing between it and the first rib, it is surprising, perhaps, that grave complications do not more frequently occur. The clavicle lies in such a position that should it suffer a direct blow its fragments may be forced against the first rib with bruising of the vessels and nerves, or, if the fracture be comminuted, a tiny fragment may puncture a vessel, or at least tear its outer coat.



This paper will deal briefly with an injury of the left subclavian artery followed some time later by a traumatic or false aneurysm. According to Keen,<sup>1</sup> the sequence of events in the development of this type of aneurysm is, firstly, an injury of the artery with leakage of blood into the wall; a thrombus then forms and organises into a scar of fibrous tissue; this scar soon yields to the pressure of blood, stretches and is thinned out, adopting the form of a sac as it is forced against the perivascular tissue.

Aneurysms of the subclavian artery, untreated, are usually fatal. They rupture externally or into the pleural sac. The patient's urgent request for relief of symptoms, however, generally precipitates early interference. In presenting this problem a brief narrative of the case in hand will serve our ends best.

A young man, G.L., aged 22, while playing football in 1926, broke his clavicle in a forward lunge across the turf. A surgeon set it with an apparently good result. His father recalls that at the time of injury there was an unusual amount of swelling. No x-ray pictures were taken. He consulted one of us (E.H.C.) in January, 1931, complaining of pain and tingling in the left arm and hand, the latter also being cold. He had noticed that the pulse of the left wrist had disappeared. The duration of these symptoms was approximately three weeks.

Examination showed a large callus at the site of the old fracture about the middle of the left clavicle, and a palpable mass behind it. The mass was not definitely expansile, though pulsation was easily felt. Auscultation above the clavicle revealed no bruit. A blood pressure of 125 systolic and 85 diastolic was the same in both arms. The pulse of the left radial was com-

pletely absent, and the hand and arm showed evidence of impaired venous return, ascribed to pressure on the subclavian vein. X-ray examination showed a rounded tumour, three and a half centimetres in diameter, situated beneath the left clavicle at mid shaft and in contact with it. There was calcification of the tumour at its lower and lateral margins, suggesting the appearance of an osteosarcoma of the clavicle. The laboratory findings, including the blood Wassermann test, were all negative.

Pre-operative diagnosis was indefinite and it was not until the clavicle was resected and drawn aside that a clearly defined aneurysm of the subclavian artery was found to be the tumour. It was about the size of a walnut and wedged between the clavicle and first rib. Its walls were thick and calcareous laterally and posteriorly. Medially and above it had a thin pulsating, expansile wall, which had the appearance of a protrusion from the remaining firmer aneurysmal coat. Its fixation between the two bony surfaces of the rib and clavicle, and also the thick calcified wall laterally, possibly contributed towards the absence of most of the cardinal signs of aneurysm. The absence of the pulse, however, was significant. This is explained on the basis of hydrodynamics, in that there is an elastic pouch which absorbs the wave of cardiac systole and from this point the blood stream is smooth and continuous.

An incision was made from one end of the clavicle to the other with a vertical incision at its medial extremity. The clavicle was completely removed. The subclavian artery was exposed above and below the aneurysm and held loosely with tapes, and a light intestinal clamp was placed over the proximal tape with sufficient pressure to cause occlusion, upon which pulsation in the aneurysm ceased. The main portion of the sac was cut away. The walls varied greatly in thickness and character. There appeared to be a complete intimal lining about which were varying thicknesses of fibrous tissue loosely attached, and between which were cartilaginous deposits towards the lateral side of the tumour. There was one elliptical orifice in the wall of the vessel. A modified Matas-endoaneurysmorrhaphy was done, supporting the repair with the sheath of the subclavian muscle. The wound was closed without



FIG. 1.—The arrow points to the aneurysm. The calcification of the wall is shown in the lower right-hand quadrant.

drainage. Convalescence was uneventful. The radial pulse reappeared about 6 days after operation, and the circulatory distress of the hand entirely abated.

Four weeks later a mass appeared suddenly at the site of operation accompanied by excruciating pain about the neck and arm. So severe was the pain that morphia was given. The patient was taken to the hospital and immediately prepared for operation. Upon incision a large laminated blood clot was found lying between the tissue layers. All anatomical relationships were distorted. Pressure against the first rib was no longer available for control of hæmorrhage, because the artery was found ruptured proximal to its medial border. An attempt was made to reach the artery proximally by cutting away the scar tissue about the scaleni muscles, but before this was accomplished the clot broke away and the arterial blood gushed with full systolic force. This was at once controlled by corking the artery with the finger. By means of a MacEwen's needle ligatures *en masse* were passed until all bleeding ceased, although it was realized that there was a possibility of including in these ligatures some portions of the brachial plexus. The subclavian vein was also included in the ligatures and no attempt was made to exclude it. The original aneurysmal repair was examined. The sutures had apparently cut through, probably owing to secondary dilatation. Some of the clot about the artery was showing signs of organization and these fragments were allowed to remain. The wound was again closed without a drain and healing was rapid and complete. There was some œdema of the extremity during convalescence and considerable pain in the index finger and thumb, but capillary circula-

tion was maintained and the arm and hand remained warm. When last seen, about four months after operation, there was no evidence of motor or sensory disturbance, and the patient enjoyed full use of the arm.

Holman<sup>2</sup> and Halstead,<sup>3</sup> with others, agree that ligation of the main artery to a limb should be accompanied by ligation of the corresponding vein, as the incidence of gangrene is much less than if the artery is tied off alone. Holman ligates the vein above the site of the arterial ligation. His principle, if applied here, may be described as tying the subclavian artery distal to the thyrocervical trunk and ligating the subclavian vein proximal to its corresponding vessel. By this procedure the capillary resistance is increased about the scapula and the full force of the collateral circulation is directed into anastomotic channels. Brooks and Martin encountered gangrene in 71.5 per cent of their experimental rabbits in which the common iliac artery alone was ligated. When both artery and vein were ligated gangrene occurred in only 33.3 per cent. Holman, applying this theory, went further and ligated the common iliac artery, simultaneously ligating the inferior vena cava 3 cm. above its bifurcation, with a result of only 7.1 per cent of gangrene.

Commenting upon this question of false aneurysm, the difficulties of intrasaccular suture and plastic repair must be emphasized. One of two things may occur. There may be secondary dilatation at the suture line or there may be leakage due to dissection of arterial blood through the faulty repair of low grade tissues. Whether, in the case described here, the slowly forming obstructing blood clot in the lumen of the artery helped to promote the formation of collateral circulation is a question. A surgeon is seldom given a second similar case, but with the experience of the one, and the valuable aid of the available literature, it would seem safer to adopt a less conservative procedure and to tie the vessel proximal to the aneurysm in the first instance. It is convincing from the case in hand and also from the literature that the corresponding vein should be tied as well and that the venous ligation should be above the arterial ligation.

#### REFERENCES

1. Keen's Surgery, Saunders, Phila., 1921, 7: 756.
2. HOLMAN, *Ann. Surg.*, 1927, 65: 173.
3. HALSTEAD, *John Hopkins Hosp. Rep.*, 1924, 21: 1.

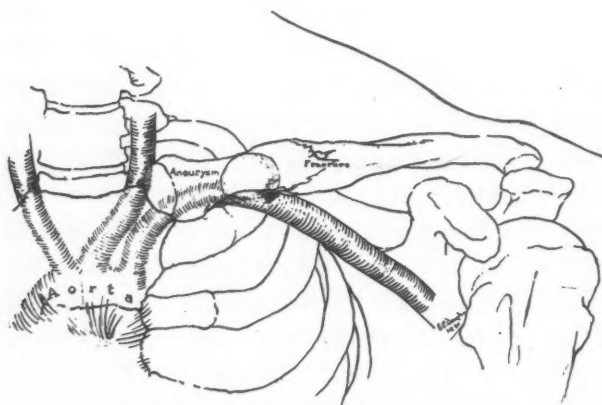


FIG. 2



## A CASE OF MULTIPLE ANEURYSMS OF THE AORTA AND GREAT VESSELS\*

BY H. F. MOWAT, M.D.,

*Toronto*

Multiple aneurysms are usually more frequent in the larger arterial trunks, especially the thoracic aorta. Klotz<sup>1</sup> collected 695 cases of thoracic aneurysm and found that 70, or 9.8 per cent, were multiple in type. The series included saccular, dissecting and fusiform varieties. Colt<sup>2</sup> made a comprehensive survey of aneurysms of the thoracic aorta in the British Isles. He reviewed 1,202 case histories, but discarded 627 on account of incomplete information. The remaining 575, which were used for statistical purposes, contained accurate clinical and post-mortem records. Saccular dilatations, varying from 2 to 5 in number, were present in 59 or 9.1 per cent. Boinet<sup>3</sup> reported 31 (11 per cent) cases of multiplicity in 340 cases of thoracic aneurysms. The relative incidence of multiple to single sacs was remarkably constant in these three large series of cases which were collected from different sources.

Thoracic aneurysms of the multiple saccular type are always due to syphilitic invasion of the arterial wall according to Campbell Howard.<sup>4</sup> This was borne out in the 2 cases of multiple aneurysms arising among 26 thoracic aneurysms found in 1862 autopsies performed in the Department of Pathology in the University of Toronto since 1925. Graves<sup>5</sup> reported 45 thoracic aneurysms occurring in 1,595 post-mortem examinations. More than one sac was present in 6 subjects. Positive evidence of syphilis was present in each case.

### CASE HISTORY

J.D.C. was a white male, 55 years of age, whose occupation had been that of an iron worker. The family history was negative. No history of abortions or premature deliveries by his wife was given. Syphilis was denied. He had always been a total abstainer from alcoholic beverages and tobacco.

His complaints were hoarseness and a non-productive cough of five months' duration. There had been a loss of 15 lbs. in weight. Slight

dyspnoea and mild attacks of dizziness were experienced on exertion.

Physical examination showed a well developed, well nourished man whose weight was 158 lbs. The pupils were equal and active to light and accommodation. No cervical enlargements or pulsations were noted. The blood pressure was 132/68 and pulse rate 114. Examination of the larynx showed complete paralysis of the right vocal cord. There were no other findings of importance. X-ray plates of the chest revealed an aneurysm of the ascending aorta and the innominate artery. The blood Wassermann test was strongly positive. Intensive anti-syphilitic treatment was instituted, and the patient improved sufficiently in 3 months to return to work; the hoarseness was less noticeable and there was a gain of 10 lbs. in weight. On January 19, 1931, the patient died suddenly on the street with a "pulmonary hæmorrhage."

### POST-MORTEM FINDINGS

The pathological findings of interest were confined to the heart and great vessels. The left ventricle was hypertrophied. The coronary arteries showed no gross change. The aortic orifice measured 8.3 cm. and the valve curtains were slightly thickened. A pouch containing blood clot and measuring 8 mm. in depth and 5 mm. at its orifice was present between the posterior aortic cusps. Each of the sinuses of Valsalva was the site of a local dilatation. The right posterior sinus, which was the largest, measured 1.5 cm. in diameter. The ascending aorta was dilated, forming a large sac, 9 cm. in diameter. The innominate, left common carotid and subclavian arteries arose from this large aneurysm. The innominate artery immediately beyond its orifice dilated into a sac 3 cm. in diameter and contained an old laminated blood clot. This aneurysm was firmly adherent to the surrounding structures, particularly the trachea, into which it had ruptured at a point 2.5 cm. from the bifurcation. The left common carotid and subclavian arteries had been pulled to the right so that they were lying anterior to the innominate aneurysm. The left subclavian artery showed a fusiform dilatation in the first 3 cm. of its course. The sac was firm and on section showed a mass of dense fibrous tissue with some

\* From the Department of Pathology, University of Toronto, and the Toronto General Hospital.

blood clot enclosed by it. Finally, there was a pouching, 3 cm. in diameter, from the inferior aspect of the transverse aorta. It was almost completely filled with an adherent clot. Its communication with the vessel was through an opening 8 mm. in width. The intimal surfaces of the various aneurysms and the thoracic aorta were very similar. Numerous pearly gray plaques, measuring up to 1.5 cm. in length, were present. Linear scarring was observed in a few areas but was not general.

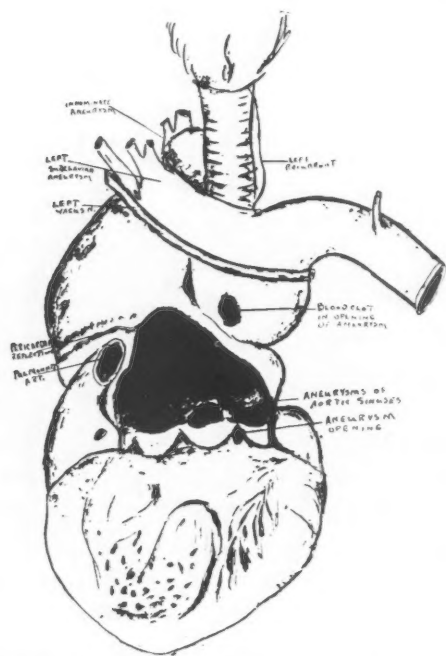


FIG. 1.—Anterior aspect of heart and great vessels. The left ventricle and ascending aorta have been opened.

Arteriosclerotic changes were also present in the arch and descending aorta.

Microscopically, the picture was that of a well marked mesaortitis of the syphilitic type. The musculo-elastic elements of the media were to a large extent replaced by fibrous tissue in the walls of the aneurysms. The vasa vasorum were numerous and had invaded the whole thickness of the media. A dense lymphocytic infiltration accompanied the vessels within the wall.

Of added interest were the relations and changes of the recurrent laryngeal nerves. The left vagus crossed and was adherent to the

aneurysm of the arch. The recurrent nerve arose at the lower margin of this sac and was adherent to it posteriorly. The right vagus crossed the anterior surface of the innominate aneurysm and its recurrent branch was deeply embedded in the anterior wall of the sac for the first 1.5 cm. of its course. It was appreciably smaller than that of the left side. The right posterior cricoarytenoid muscle was also smaller than its mate of the left side. Microscopic section of the right recurrent nerve showed a marked atrophy. That of the left was normal in appearance. Section of the right cricoarytenoid muscle showed almost complete loss of muscle fibres and replacement by fibrous tissue.

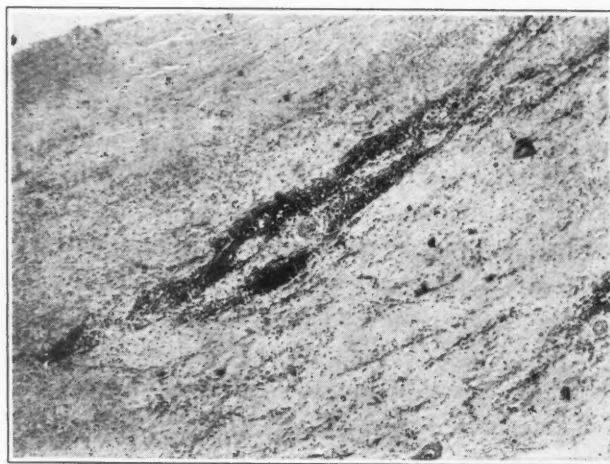


FIG. 2.—Microphotograph showing vascularization and lymphocytic infiltration of media.

#### SUMMARY

A case of multiple thoracic aneurysms is presented in which 8 distinct sacs were present. Atrophic changes were described in the right recurrent nerve and posterior cricoarytenoid muscle as a result of pressure from the innominate aneurysm.

#### REFERENCES

1. KLOTZ, Bell Memorial Lecture, 1925, University of Toronto Studies.
2. COLT, *Quart. J. Med.*, 1927, 20: 331.
3. BOINET, *Maladies des Artères et de l'Aorta*, 1907.
4. HOWARD, *Osler's Modern Medicine*, 1927, 4: 840.
5. GRAVES, *Southern Med. J.*, 1927, 20: 92.



## Editorial

### RECENT STUDIES ON "THE COMMON COLD"

TWO articles appearing in the current issue of the *Journal* serve to focus anew our attention on that most annoying of the minor maladies—"the common cold". In one Dr. H. P. Wright and his colleagues<sup>1</sup> detail some experiments in regard to the influence of large doses of vitamin A in producing immunity to a number of infections of the upper respiratory tract, including "the common cold", and in the other Dr. R. Vance Ward<sup>2</sup> gives his experiences with certain vaccines administered with the object of preventing colds and other respiratory troubles, or, at least, ameliorating them.

The common cold is so common that we are apt to pass it by with a contemptuous gesture, unless, of course, we are the sufferers ourselves. Then we have the conviction borne in on us that the affection is not one to be trifled with. Apart from the discomfort entailed, a cold usually passes off quickly without leaving any serious aftermath. Yet, repeated colds may lead to bronchitis, emphysema, otitis media, and infection of the various sinuses, to say nothing of tuberculosis. The subject, too, has an economic bearing, for Dr. Ward finds that forty per cent of the absences from work owing to illness are attributable to colds even in normal times. The common cold, then, is worthy of serious investigation. That it has not received more attention is probably due to the facts that the affection is transient, is borne with as a trifling and passing evil, and no deaths are the result of it, at least immediately. When investigation has been undertaken it has served to shew that many various and variable factors enter into the problem, constituting it the veritable will-o'-the-wisp of clinical research.

The common cold is presumably due to infection and here, at once, the first difficulty arises. Many different germs are present in the nasopharynx and upper respiratory

passages, among them *M. catarrhalis*, streptococcus, pneumococcus, *B. Pfeifferi*, in cases of cold, but any or all of them may be present in the normal throat. Accordingly, since any of these microorganisms is competent to set up an inflammatory process it is hard to incriminate any one as the specific cause of a cold. Indeed, it may be that a cold is due to a malign combination of several. Under such circumstances the search for the cause is much like the proverbial looking for a needle in a bundle of hay.

Recent, most important, work on the vitamins has shewn that a deficiency of vitamin A lessens the resistance of the animal body to infection, and, following up this idea, Dr. Wright and his associates have studied the influence in children of diets specially rich in this vitamin. They divided the children under observation into two groups, those who were fed on the usual diet of the hospital, which, of course, contained some vitamin A, and a second who received a diet in which large amounts of the vitamin were present. They could not satisfy themselves that the additional vitamin had any appreciable protective value insofar as colds and associated maladies were concerned.

Dr. Ward selected a number of industrial workers who were specially liable to respiratory disorders and inoculated them with certain well-known stock vaccines in the hope that colds and other infections of the respiratory passages might be prevented. A control group was also studied. He thinks that a certain amount of protection was obtained from the use of the vaccines, though, curiously in a group studied in 1930-31, the number of days that the workers were off work was increased. There are, however, a goodly number of persons on whom the vaccine has no effect whatever. In view of the conflicting opinions that have been expressed on this phase of the subject, we may safely conclude that the matter is not yet settled. That the results of preventive inoculation are not better is not surprising when we remember that the

1. WRIGHT, FROSST, PUCHEL AND LAWRENCE, *Canad. M. Ass. J.*, 1931, 25: 412.

2. WARD, *Canad. M. Ass. J.*, 1931, 25: 408.

specific cause of colds is not yet established beyond peradventure and that the vaccines employed have been of the "gunshot" variety.

The idea that colds are due to a filterable virus has been gradually taking root since Kruse<sup>3</sup> advanced it in 1914. This observer took the nasal secretions of persons attacked by natural "colds", passed them through a Berkefeld filter, and introduced small amounts of the filtrate into the nasal passages of previously healthy persons. He was able in this way to reproduce the features of the common cold. This observation was confirmed by Foster<sup>4</sup> and Olitsky and MacCartney<sup>5</sup>. In the case of all the positive experiments a Gram-negative anaerobic bacillus, of the type described by Olitsky and Gates<sup>6</sup>, was recovered from the filtrate, and the suggestion immediately rose that this organism might be the specific agent that was being sought. However, in a later study, Shibley, Mills and Dochez<sup>7</sup> reported that they had found a Gram-negative bacillus, like that described by Olitsky and Gates, in a majority of the filtrates derived from the nasal secretions of normal persons, and that they had been unable to infect apes by the intranasal inoculation of such filtrates. This led them to believe in the existence of a filterable virus in the nasal secretions of those suffering with colds. Apes were used because it was found that they were susceptible to the action of nasal filtrates from human patients with colds, while the ordinary

laboratory animals did not manifest typical symptoms under the like circumstances. The experiments of Long and Doull<sup>8</sup> confirm and extend the observations of Kruse, Foster, Olitsky, Dochez and the others that the common cold is due to a filterable virus. More recently still, Dochez, Mills, and Kneeland<sup>9</sup> report that they have been able to cultivate the virus on a suitable medium, that it may survive several passages, that it is capable of growth, and may live as long as seventy-four days *in vitro*. The culture method adopted by Dochez and his collaborators was the Li and Rivers modification of the Maitland technique. The final dilution obtained from the original material was so great (1:1,000,000,000,000,000) as to rule out the presence of any significant amount of the original virus. In all this work proper controls were made use of.

Such evidence is strong, and should it be finally settled that the common cold is due to a filterable virus, we may be on the way to a scientific handling of the common cold. We will have a definite causal agent to work with, and, in view of the favourable experience derived from the use of other filterable viruses in the prevention and amelioration of certain other diseases, such as small-pox, varicella, measles, infantile paralysis, and foot and mouth disease, we may hope yet to obtain a more potent vaccine than has hitherto been employed. It remains to be seen whether this is possible, and whether, also, an important point, the immunity produced by such a vaccine is sufficiently lasting to make it of real value.

A.G.N.

3. KRUSE, *Munch. Med. Wchnschr.*, 1914, **61**: 1547.

4. FOSTER, *J. Am. M. Ass.*, 1916, **16**: 1180.

5. OLITSKY AND MACCARTNEY, *J. Exper. Med.*, 1928, **38**: 691.

6. OLITSKY AND GATES, *J. Exper. Med.*, 1922, **36**: 501.

7. SHIBLEY, MILLS AND DOCHEZ, *Proc. Soc. Exper. Biol. and Med.*, 1929, **26**: 59 and 562.

8. LONG AND DOULL, *Proc. Soc. Exper. Biol. and Med.*, 1930, **28**: 53.

9. DOCHEZ, MILLS AND KNEELAND, *Proc. Soc. Exper. Biol. and Med.*, 1931, **28**: 513; also, *The Lancet*, 1931, **2**: 547.

## STATE MEDICINE

THAT the medical profession of the Maritime Provinces are sensing the stirrings of State Medicine may be assumed from the attention given to that subject in the Presidential addresses of Dr. R. W. L. Earle, President of the New Brunswick Medical Society, and Dr. Dan Murray, President of the Nova Scotia Medical Society.

Doctor Earle refers to a problem which will have to be solved, "one whose shadow

is already falling across our pathway, namely, State Medicine". He points out that whereas in the past there was a willingness to "await in silence for the more material rewards", this attitude has changed and "medical service to-day demands money and this is as true of the rural practitioner as of his urban colleague".

In his address, Doctor Earle discussed the effects of State Medicine, quoted Dr. George



Blake, an opponent of Health Insurance, criticized the Sheppard-Towner Act of the United States, and expressed his own condemnation of State Medicine because it means "to submerge the abilities of the individual doctor in a uniform trust of mediocrity". And, further, he believes "The practice of medicine is not an industry but a personal privilege accorded to those who merit professional standing within a community".

Doctor Murray views the present as a time of many changes in which the practice of medicine will likely be involved. He points out that "the general public has a keen appreciation of the right of every citizen to good health and skilled medical care", and that "the laity are impatient with our method of practice, and critical of the cost of medical service". He considers "The economic basis upon which medical practice has hitherto been conducted has been unsatisfactory both to the profession and to the public . . .". Two paths are open in Doctor Murray's opinion; one is an inward improvement which can be secured by the profession's raising the standard of its own efficiency; the other is state health insurance.

Both speakers agreed that State Medicine is a live issue and that it should be studied by the profession. A similar conclusion was the reason why the Council of the Canadian Medical Association, at the Vancouver meeting, authorized such a study, which action on the part of the Council will evidently meet with the approval of Doctors Earle and Murray.

Most members of the profession are individualistic and find it difficult to believe that a physician will, when placed in a salaried position, retain his ideals and ambitions, and that he will do as good work as he would if he were working independently. If we consider the number of physicians who now occupy salaried positions in universities, hospitals and research laboratories, we should be convinced that a salaried position has not put a blight on them. The dollar-chaser is a dollar-chaser, whether he be working for himself or for someone else. The conscientious worker is always a good worker, because he finds his happiness in work well

done. All the poor, slovenly, inefficient workers are not in government services.

Health Insurance is to be studied by the medical profession of Canada. It is important that we avoid coming to conclusions without knowing all the facts. It is much more easy to condemn or to praise on hearsay evidence than it is to study a question and come to a reasoned opinion. In this connection may we draw attention to the admirable paper by Dr. Harris McPhedran, which appears in this issue. The pros and cons are very fully discussed there.

The profession should have in mind that there is only one measuring-rod, and that is the greatest good for the greatest number. The members of the profession will quite naturally consider their own interests, and seek to preserve those which are for the benefit of the public as well as of the profession. The fact must be faced that it is the public who will determine how medicine shall be practised, and the decision should be guided by the medical profession as a matter of mutual advantage.

In the presidential addresses referred to, we find the refreshing views of men experienced in general practice. The hope of any change would surely be to bring such experienced service within reach of a large number of people. We see no evidence of public opinion that the individual practitioner earns too much. The complaint with regard to the cost of medical care arises because the distribution of cost is unreasonable and unbearable on account of the uneven distribution of disease. If the profession do not want health insurance, it would appear that they will have to be prepared to offer some plan, other than that of insurance, for the even distribution of costs.

We understand that the socialization of medicine implies the extension of the full benefits of curative and preventive medicine to each individual, without consideration as to the ability of the individual to pay for the service at the time. It is agreed that everyone should have such benefits. The question is, how are they to be provided? Certainly it should not be at the expense of the medical profession.

It is a matter of public interest to maintain a medical profession of high ideals and capabilities, because in any lowering of

standards the public would suffer. That the present system of medical practice is not perfect is true, but it might be added that no system is perfect. The present system is neither fair to the public nor to the pro-

fession in many ways, and the medical profession should strive to better it rather than expend too much energy in defending a system which so many agree could be improved.

A.G.F.

### THE PROPOSED FORMATION OF A CANADIAN HOSPITAL COUNCIL

FOR some time there has been a desire on the part of hospital workers throughout Canada to create a national hospital organization. Stretching from coast to coast we have had for several years a chain of very active provincial hospital associations which have been of considerable assistance in improving the hospital facilities in these provinces. True, the hospitals of the province of Quebec are not organized into an association as yet, but the Montreal Hospital Council is a very active body and hopes ultimately to bring about the creation of a provincial organization. The main reason why a national association has not been formed already is the geographical handicap; with such a tremendous mileage to traverse, it is doubtful if sufficient general support by administrators, trustees and doctors could be assured to warrant the holding of a convention. Moreover, most of our leading hospitals are now members of one or more of the excellent hospital associations with headquarters in the United States.

To meet this situation and to provide a much needed cooperation between provincial societies, it is now proposed to form a Council or Federation of the existing hospital associations. The proposal is that each association be represented by a small delegation, two or more representatives, and that this body meet as agreed upon for the consideration of hospital matters of general interest.

There will be no dearth of opportunity for this Canadian Hospital Council to be of assistance to our hospitals. Hospital legislation leaves much to be desired. The recent imposition of the sales tax on hospital equipment and supplies, despite the vigorous protests of the public hospitals that they are philanthropic organizations operated without profit, will cost the hospitals, it is estimated, from one-quarter to one-third of a million dollars annually. An organization speaking officially for the entire hospital body of

Canada could do much to protect the sick public in such legislative matters. Certain equipment imported of necessity is now duty free, but the list should be broader. Also there is need for interprovincial recognition of the claims of hospitals for remuneration for indigents resident in other provinces, similar to the arrangement now being effected between Saskatchewan and Manitoba. Many other legislative changes, provincial and federal, could well be considered, such as remuneration of hospitals (and physicians) for the care of motor accidents where damages are awarded; the care of individuals awaiting deportation, of sick mariners; the reference of war veterans to hospital outpatient clinics for free but expensive and time-consuming physical examinations, etc. There are also many hospital problems of general interest which will prove fruitful fields for study. There is a real need in Canada for carefully chosen study committees to crystallize and develop the best modern views on hospital administration and organization. There is need for greater uniformity in our methods of accounting, for at the present time it is practically impossible to make any reliable comparison of the costs of hospital or training school operation. It would be of considerable value to the smaller rural hospitals especially if there could be made available for their information suitable and economical suggestions concerning construction and equipment and the most modern views on ventilation, heating and sterilization. Much of the available literature on construction, ventilation and radiation published elsewhere does not take into consideration the extreme climatic conditions peculiar to many parts of Canada, nor does it emphasize the value of proper well insulation in lowering heating costs. The field of study in this direction is practically unlimited.

Perhaps one of the most valuable contributions of the proposed Council, one which



might become more obvious in years to come, would be a study of the likely effects on hospitals and hospitalization of any possible nationalization of medicine. A study elsewhere reveals a far-reaching effect upon hospital organization and control, hospital distribution, type of accommodation and medical staff privileges. As the principle of the nationalization of medicine has already inserted entering wedges into Canada, it is timely that our hospitals be prepared when occasion arises to offer constructive suggestions and to mould public opinion and legislative action.

The various hospital associations have been discussing the proposal and at the time of writing nearly all had endorsed the movement and expressed their intention to send delegates to the organization meeting, by which time

it is anticipated that all of the provinces will have signified their intention to participate. The Department of Hospital Service of the Canadian Medical Association is sponsoring this movement and will be able to undertake the detail work of many of the studies initiated by the Hospital Council, thus relieving the latter of considerable expense. It was proposed to hold the organization meeting of this Hospital Council on September 28th, on the occasion of the convention of the American Hospital Association in Toronto in September, in order to take advantage of the unusually representative gathering of hospital workers who will attend from every province in Canada. Further information in regard to this matter will appear later

HARVEY AGNEW

## Editorial Comments

### Dr. Alfred Cox

We note that at the last annual meeting of the British Medical Association, the gold medal of the Association, with an illuminated address, was presented to Dr. Alfred Cox for services rendered during the past thirty years as Medical Secretary of the Association.

In making the presentation, Sir Ewen MacLean, Chairman of the Council and Past-president of the Association, drew attention to the great contribution which Dr. Cox had made to the efficiency of the administrative work of the Association. Abstracting from the words of the address, Sir Ewen said it was not without significance that during Dr. Cox's term of office an increase in the membership of the Association of from 21,000 to 35,000 had been recorded, and that there was more general recognition of the fact that the Association had for its inspiring motive an increase in the efficiency of medical practice as a form of social service aiming at the promotion of public health. Reference was also made to the assistance given by Dr. Cox as a member of the Medical War Committee, in which he served effectively and earned the confidence and gratitude of all concerned, and to his part in the establishment by Parliament of the scheme of National Health Insurance. The Association appreciated, he was sure, Dr. Cox's devotion to the true interests of the profession; his recognized honesty of purpose had helped not infrequently to save a difficult situation.

The cordial and mutually helpful relations now established between the British Medical Association and the organized medical profes-

sion in Canada and in other more distant overseas Dominions were an impressive testimony to the wisdom of the choice which sent Dr. Cox across the seas as an ambassador of helpfulness and goodwill. The appreciation of the professional brethren in Canada and in the other overseas Dominions has already been expressed in no uncertain fashion. While universal regret will be felt that the age limit of the Association must terminate Dr. Cox's official service next year, Sir Ewen was sure that this would not terminate his friendship with those with whom he had been so long and so closely associated.

At the first meeting of the Representative Body following this presentation, the announcement was made of the proposal initiated by Dr. H. Rowland Fothergill, to signalize the widespread appreciation of the services rendered by Dr. Cox and to make his retirement an occasion worthy of the Association, of the whole profession, and of the man. A general committee has been formed, of which Sir Ewen MacLean was elected Chairman, and it has decided that the contribution expected from members at home and overseas should not be more than ten shillings. A resolution was presented in the name of no fewer than 34 branches, and was unanimously carried, that the Representative Body should offer to the Association an oil painting of the Medical Secretary on his retirement from office in 1932. Dr. Fothergill stated that in initiating the matter it was felt that any action should be not an official but a personal one from every member. The money obtained should be devoted in the first place to the portrait, and

any remainder to such personal memento as would best accord with the wishes of the recipient.

The Executive Committee of the Canadian Medical Association has been in communication with Dr. Fothergill, and at the approaching meeting will formulate plans whereby the members of our Association may participate in this expression of friendship for Dr. Cox and appreciation of his efforts on behalf of the Canadian profession.

A.D.B.

### Aristides Agramonte

The death of Dr. Aristides Agramonte, which occurred at New Orleans on August 17th, recalls to mind one of the great episodes in the history of epidemiology. He was one and the last remaining of "The Big Four" who constituted the famous Yellow Fever Commission which the United States sent out in 1900 to study perhaps the most fatal and dreaded disease that has afflicted mankind. The other members, who also should be ranked among the benefactors of the race, were Walter Reed, Jesse Lazear and James Carroll. At the time the existence of filterable viruses was little more than an idea, and the rôle of insect vectors of disease had only just been established for malaria by Ronald Ross. The study of yellow fever was a fresh field. How brilliantly the problem of infection in this disease was solved is now a matter of history. Years before, Carlos Finlay, of Havana, had insisted that yellow fever was caused by a mosquito. Reed determined to test the validity of this theory. Two of the commission, together with other volunteers, lived with yellow fever patients in wards from which mosquitos were excluded, surrounded by the vomit and excreta of the patients, and yet did not contract the fever. Lazear and Carroll did more. Carroll heroically permitted himself to be bitten by a mosquito that had fed on victims of the disease and promptly developed yellow fever, from which he barely escaped with his life; indeed, he died only a few years later at an early age, his death presumably having been accelerated by the residua of the fever. Lazear succumbed to the bite of an infected mosquito received accidentally. The theory was proved. Agramonte, having had the fever in his earlier years, proved to be immune. He had to perform the post-mortem examinations. The practical outcome of the Commission's work was the effective control of a disease that had taken its toll of hundreds of thousands of lives in the Tropics.

Agramonte was born in Cuba, but was taken to the United States at the age of two, after his father had been killed by the Spanish troops. He took his degree in Medicine at Columbia University in 1892, and soon after became

bacteriologist to the Board of Health in New York. In 1901 he went to the University of Havana, but left it to become the head of the Department of Tropical Diseases at the new medical school of the University of Louisiana. He had just been elected this summer to be president of the Pan-American Medical Congress which is to be held in 1932 in New Orleans.

Dr. Agramonte has deserved well of his fellows and is secure of his place among the makers of medical history.

A.G.N.

### Wood's Glass: A New and Valuable Diagnostic Agent

Few of us realize what a wonderful substance glass is. Of mineral origin, it is strong, brittle, tough, plastic, ductile, porous, transparent, translucent, or opaque, as the case may be. Glass is now one of the necessities of life, so commonly used that it is one of those things that are taken for granted. One can hardly realize that there was a time, not so very long ago, when windows were unglazed, being merely holes in the wall or, at most, closed in with some thin woven fabric; and when glass was introduced windows were taxed, thus putting a premium on darkness and ill-health. Nowadays, glass is freely used and for a variety of purposes.

Perhaps the property for which glass is chiefly valued is its power of transmitting the light rays of the sun. At the same time, it, of course, is permeable in a certain degree to the heat rays and the ultra-violet rays. Research has proved that it is possible to modify this permeability of glass so that any given type of ray can be shut out at will. In other words, glass may be used as a filter. This is done by means of the addition of certain metallic salts, and advantage of this fact is taken in connection with certain branches of optics, notably, photography, with therapeutics, and, now, with diagnosis.

Incidentally, it may be remarked that colour is bound up to a certain extent with the power of filtration. Green glass tends to exclude the heat rays and, therefore, is much in vogue in the form of bottles, to contain beer and allied liquids, as some of our readers may know. Canary glass, called so from its yellow colour, contains 1 per cent of uranium oxide, and has the property of converting the invisible rays into the longer rays of green light, which can be seen by the eye. Wood's glass, which owes its peculiar properties to a certain proportion of nickel oxide on a soda base, is of a deep blue colour, and scarcely permits the passage of ordinary light. Iron salts in glass tend to prevent the passage of the ultra-violet rays, especially when present in the ferrie condition.



The constitution of glass, therefore, may be altered to suit a variety of important purposes.

Wood's glass has certain remarkable properties that make it of great value in medicine. It was first described by Prof. R. W. Wood, of Johns Hopkins University, though a similar glass was discovered independently in Great Britain. If by means of a glass prism a beam of light from a carbon arc is split up after passing through Wood's glass, the resulting spectrum, when thrown on a white screen, will show a narrow band of red and a broader band of violet light. If, instead of the screen, a sheet of paper coated with vaseline is used, a bright band of fluorescence will be seen just outside the violet end of the spectrum, separated from the band of violet light by a narrow band of comparative darkness. In 1923, Margarot and Deveze<sup>1</sup> noted the fact that hairs infected with ringworm fluoresced when examined in light that had been passed through Wood's glass. This observation has proved of great diagnostic value in dermatology.

In a recent issue of the *British Medical Journal* Dr. John Kinnear,<sup>2</sup> of the Skin Department of the Dundee Royal Infirmary, has again called attention to the value of Wood's glass in the diagnosis of ringworm, and at the same time has noted certain limitations to its use which do not seem to have been stated with sufficient clearness in the literature.

Any ordinary source of white light produces the long ultra-violet rays necessary to produce the fluorescence, but, as intensity of light is important, a small carbon arc is the most satisfactory. Total darkness in the examining room is not necessary or even desirable, especially where children are concerned, for several reasons, which need not be specified here. It is important that attention should be paid only to the presence or absence of fluorescence *in the hairs themselves*. Any scales present on the scalp will fluoresce, but in this case the colour is whitish. The colour in the case of ringworm is a brilliant green. It is important to note that vaseline on the scalp will give a bluish fluorescence, which will mask the fluorescence due to ringworm. Doctor Kinnear has examined many cases with microsporon and trichophyton infections under Wood's glass, and, while some give a whitish fluorescence, none give the striking and characteristic green colour found with *M. audouini*, the common fungus of ringworm. If care is taken to remove any adhering epithelial scales from the root of the hairs the whitish fluorescence will disappear. It should, therefore, be easy to avoid error. In the case of favus the hairs give a pale white fluorescence

unlike that of common ringworm. The fluorescence in the case of infection with *M. audouini* is due to the presence of the specific fungus in the hair; the other forms of fluorescence are to be attributed to the peculiar properties of keratin.

By the use of Wood's glass in cases of fungus infection of the scalp we have an easy and reliable method of diagnosis, which not only enables us to determine the presence or absence of *M. audouini* in any given case but enables us to determine whether cure has taken place or not.

A.G.N.

### An Enzyme Curative in Experimental Type III Pneumococcus Infection

Some of the more important points which have come to light from the intensive work carried on at the Rockefeller Institute during the past decade on the chemistry and immunological reactions of fractions of the pneumococcus are now generally known. For the present purpose suffice it to say that the capsular substance, which is a polysaccharide, is responsible for the type specificity and is also associated in some way with the virulence of the organism. It occurred to Avery and Dubos<sup>1</sup> that if they could find an enzyme which would remove the capsular substance, it might be used in the treatment of pneumococcus infections as well as for more immediate academic problems. As the specific capsular substances of the pneumococci have much in common with the group of "hemicelluloses" search was made for natural sites where large amounts of organic material of this group undergo decomposition. After unsuccessful search of various composts they at last obtained a sample of soil from the cranberry bogs of New Jersey which contained a principle capable of splitting the polysaccharide of the type III pneumococcus. This was specific, as it did not split the polysaccharide of either type I or type II. Using a special medium, these authors managed to isolate a small, spore-forming, Gram-negative bacillus from several others present in the soil which had this property. The splitting property was due to the presence of an intracellular enzyme and this could be obtained from autolysed cultures of the bacteria. Further, this bacterial enzyme was capable of decomposing not only the purified capsular polysaccharide of the type III pneumococcus but also destroyed the capsules of the living organisms, both in the test tube and in the animal body.

1. Margarot and Deveze, *Bull. Soc. Méd. d. Montpellier*, 1925, 6: 375.

2. Kinnear, *Brit. M. J.*, 1931, 1: 791.

1. Avery and Dubos, *J. Exper. Med.*, 1931, 54: 51 and 73.

The authors were now in a position to test the protective and curative effect of this enzyme in experimental pneumococcus type III infections in mice. They found that the enzyme injected simultaneously into the peritoneum with the infecting organism protected these animals against a million times the minimal lethal dose and that some protective action was also present if the enzyme was injected forty-three hours previously. A curative action was also exhibited to a hundred times the minimal lethal dose if a single dose of enzyme was inoculated twelve or eighteen hours after the inoculation of the virulent type III pneumococcus. The action in the body appears to be decapsulation of the organism which enables the phagocytes to destroy the decapsulated cocci.

The next step, obviously, will be to assay the curative value of this enzyme in pneumococcus type III pneumonias in man. One hopes that this will succeed, not only for humanitarian reasons but also as a triumph for those who

through all these years have accumulated the necessary facts to render possible the practical application of a method of treatment of type III pneumococcus pneumonia. It will also serve as an encouragement to those engaged in seemingly academic researches in medicine, and as a vindication of the method of research for its own sake rather than for immediate practical application.

ARNOLD BRANCH

### Erratum

Our attention is called to the fact that a statement appeared in the report of the Vancouver meeting (August issue of the *Journal*), and was repeated in the editorial on the same subject, to the effect that a Section of Medical History was inaugurated. Actually, this Section was organized in 1928 and the first meeting of the Section, with a historical exhibit was held in Montreal in 1929.

## Retrospect

### THE PRESENT STATUS OF THE SURGERY OF GASTRIC AND DUODENAL ULCER

By FRASER B. GURD, B.A., M.D.,  
F.R.C.S. (Can.), F.A.C.S.,

Montreal

It is probable that no subject has interested surgeon and physician alike during the past ten years to the same extent as has the treatment of peptic ulcer. A series of contributions, made to the Semi-Centennial Meeting of the American Surgical Association, has recently been published upon the surgical treatment of gastric and duodenal ulcer<sup>1</sup>. Among the contributors to this extremely valuable symposium are a group of some of the most outstanding surgeons on this continent, whose names have been for many years associated with the serious study of this problem.

As one of the contributors, St. John, points out, the etiology of gastric and duodenal ulcers is not known, and consequently the soundest method of approaching the subject of treatment must be based upon an honest evaluation of the results obtained from present methods. He, along with many others, stresses the absolute necessity for a careful follow-up study, if this information is to be obtained. He draws attention, also, to the fact that, unfortunately, European literature has laid emphasis on technical procedure and that there is a paucity of evidence of detailed study of interval and late results. Reference to the attached table will show that

the operative mortality was high in both types of operation performed. St. John does not attempt to offer an explanation as to why the mortality from either type of operation was so high, although the actual cause of death is given in the different cases. It is interesting, in this connection, to note that, whereas ten cases following gastro-enterostomy died of pulmonary complications, only three cases died from the same cause following resection.

John A. Hartwell and Robert K. Felter report the personal study of a group of 152 surgically treated peptic ulcers from the Department of Gastroenterology of the Cornell Clinic. As the authors point out, since these cases were operated upon by 46 different surgeons, their series seems to offer a fair cross-section of results around New York City. Of this group, 117 consisted of duodenal ulcers, 3 of double lesions (gastric and duodenal), and 32 were gastric ulcers. Gastroenterostomy in 92 duodenal ulcers gave an operative mortality of 2.1 per cent. In cases of gastric ulcer there was no mortality following gastroenterostomy. The Polya operation was performed in 11 duodenal ulcers, with an operative mortality of 36 per cent, and in 12 gastric ulcers, with a mortality of 17 per cent. In 5 cases evisceration was noted as the cause of death. In the opinion of these authors, posterior gastroenterostomy in duodenal and pyloric ulcer gave excellent results. Performed in 54 cases, which were followed for an average of three and a half years, the results were excellent in 39; in 11 others, satisfactory. In 3 the results were fair; and only 2 were unsatisfactory. The Polya



resection was performed for duodenal ulcer in 7 of the cases followed. Three of these cases could be classed as excellent; 1 more as satisfactory; 2 as fair; and 1 as unsatisfactory. It is thus seen that gastroenterostomy in this series gave 92 per cent of satisfactory results, a distinctly higher percentage than was obtained in the type of resection performed.

Hartwell and Felter draw attention to the efficiency and reliability of x-ray diagnosis, and conclude that their cases demonstrate the almost uniformly good results of operation for peptic ulcer in the hands of a comparatively large group of surgeons. At the same time, they point out that accurate determination of end results requires careful study over long periods.

John H. Gibbon contributes a short paper upon the immediate mortality in operations for gastric and duodenal ulcer and its causes. For the purpose of this paper he analyzed 334 cases in which operation was done by himself or his immediate assistants during the past ten years. In 267 of these in which no perforation was found at the time of operation the mortality rate of 10.8 per cent was obtained. As the author states, the only comfort to be derived from examination of the causes of death is their variety. The high percentage of lung complications, well over 50 per cent, although regrettable, is somewhat of a comfort as this can hardly be attributed to technical error. Of the 267 cases, 224 were duodenal, 41 gastric and only 2 jejunal. One

of the most interesting facts brought out in Doctor Gibbon's contribution is that in the total number of cases of duodenal ulcer, resection was carried out only twice, in one case with a fatal outcome. As Gibbon states, "The great rarity of jejunal ulcer in our clinics, where gastrojejunostomy is the common operation for duodenal ulcer, is very striking, for, surely, all our jejunal ulcers have not gone elsewhere for diagnosis and treatment."

John M. T. Finney and Edward M. Hanrahan, Jr., report the results of operations for chronic gastric and duodenal ulceration. These authors, in their first sentence, frankly admit that one of the many reasons that prompted them to undertake this study is the fact that they approach an operation for ulcer, either gastric or duodenal, with less confidence of their ability to effect a cure through surgical measures than in the case of the other common non-cancerous surgical lesions found in the abdomen. These authors stress the importance of choosing the operation for the individual case after the abdomen has been opened. They indicate their opinion that, in general, pyloroplasty, preferably with excision of the ulcer, is the operation of choice when practicable. Gastroenterostomy is reserved for those cases with an obstructed pylorus. Such miscellaneous procedures as excisions with knife or cautery, wedge and sleeve resections, either with or without gastroenterostomy, and partial gastrectomy were applied to those cases in which

TABLE I.  
COMPOSITE TABLE SHOWING MORTALITY RATE AND SATISFACTORY RATE IN OVER TWO THOUSAND CASES OF  
PEPTIC ULCER

Reporter and Clinic	Total Cases	Gastric	Duodenal	Jejunal	G-E	Percentage Mortality	Resection	Percentage Mortality	Pyloroplasty	Percentage Mortality	Percentage of satisfactory results: G. E.	Percentage of satisfactory results: resection	Percentage of satisfactory results: pyloroplasty
St. John, Presbyterian, N.Y. .... (Mortality due to technical error) .....	(435) 195	Not	classified		119	15.1 5.9	76	19.6 15.8	...	...	92.5	79.7	.....
Hartwell and Felter, Cornell Gastroenterology (46 surgeons) .....	152	32 (3 double)	117	..	92 (D) 6 (G)	2.170 0	11 (D) 12 (G)	36.0 17.0	...	...	92.0 (D)	57.0	.....
Gibbon, University of Pennsylvania (Self and personal associates) .....	267	41	224	2	221 (D) 16 (G)	9.0 31.2	2 (D) 16 (G)	50.0 18.7	...	...	.....	.....	.....
Finnie and Hanrahan, Johns Hopkins Hospital, 1900-1925 .....	627	268	339	20	260	8.1	70	12.9	257	5.2	89.6 (D) 76.1 (G)	88.2 (G)	86.8 (D) 83.9 (G)
Finnie and Hanrahan, Johns Hopkins Hospital, 1925-1930 .....	112	37	70	5 (mortality 20%)	84	2.4	7	14.3	12	2.7	.....	.....	.....
Pool, New York Hospital, N.Y. ....	188	...	188	..	119	7.5	.....	.....	...	...	85.0	.....	.....
Douglas, St. Luke's, New York ...	375	150	225	..	135 (D) 62 (G)	2.9 6.4	2 25	50.0 8.0	...	...	88. (D) 78. (G)	75. (G)	.....
Gatewood, Presbyterian Hospital, Chicago .....	302	...	302	..	264	2.7	30	0.0	5	0.0	.....	.....	.....
	2,218	528	1,465	27	1,406	....	235	....	274	...	.....	.....	.....

(D) Duodenal. (G) Gastric.

pyloroplasty or gastroenterostomy was for some reason contraindicated.

Their present report is based upon the histories of all patients operated upon in the Johns Hopkins and Union Memorial Hospitals between 1900 and 1925. Six hundred and twenty-seven chronic ulcers were operated upon. Of these 268 were gastric, 339 were duodenal, and 20 were post-operative marginal ulcers. The mortality of the whole group was 8.6 per cent, and 83.9 per cent of the 330 traced cases were improved by their operations. A second group of 112 cases, treated between 1925 and 1930, is separately analyzed.

Taking the operations as such, without regard to the lesion which prompted their performance, Finney and Hanrahan found that gastroenterostomy was performed in 260 cases with a mortality of 8.1 per cent. Pyloroplasty was done on 257 cases, with a mortality of 5.2 per cent, while the mortality in 70 gastrectomies was 12.9 per cent. After gastroenterostomy 84.1 per cent were benefited; after pyloroplasty, 85.8 per cent. Among the 21 deaths in the gastroenterostomy group 13 were due to anastomosis obstruction. If these be eliminated, the mortality from gastroenterostomy would have been 2.9 per cent. Finney and Hanrahan state that it is interesting to compare this mortality rate with that of 5.2 per cent for pyloroplasty, in the majority of which cases death was due to pulmonary complications.

Although the total number of cases reviewed in their second group by Finney and Hanrahan is naturally smaller than that in their main group, they are, in the writer's opinion, more interesting. Between 1925 and 1930 in the Johns Hopkins Hospital 112 chronic ulcers were operated upon; of these 37 were gastric, 70 were duodenal, and 5 were post-operative marginal ulcers. The choice of operation, together with the mortality from the different types of operation, is indicated in the following table:—

Operation	Number of Cases	Mortality Per cent
Pyloroplasty.....	12	0.0
Partial gastrectomy.....	7	14.3
Miscellaneous operations.....	4	0.0
Operations for marginal ulcer....	5	20.0
Gastroenterostomy.....	84	2.4
	112	3.7

The last 60 gastroenterostomies for duodenal ulcer were performed with one death.

In the writer's (F.B.G.) opinion, the most interesting and instructive features of this last analysis are three. (1) In the first place, only 112 chronic gastric and duodenal ulcers were operated upon in Johns Hopkins Hospital over a five-year period; (2) during this whole period, also, only 7 cases were treated by partial gastrectomy, whereas 12 times as many were subjected to gastroenterostomy only; (3) the oper-

ative mortality rate in the more radical procedure was 7 times as great as in gastroenterostomy. Of interest, also, is the fact that but relatively few pyloroplasties were performed, despite the authors' (J. M. F., and E. M. H.) expressed opinion that this procedure is the operation of choice where practicable.

In discussing indications for operation, Mayo referred to the fact that in certain cases, owing to an inability on the part of the patient to carry out an adequate dietetic regime, operation must be performed. Also, in many cases in which surgical treatment should be given it is to the disadvantage of the patient to prolong medical treatment and repeated "cures". All patients with perforation, hæmorrhage, obstruction, and conditions which result in pain, malnutrition, and chronic dyspepsia should have surgical treatment. Mayo states that few of us would, ourselves, submit to extensive gastrectomy for duodenal ulcer as a primary operation, or permit this operation to be performed on members of our families, inasmuch as local operations, gastroenterostomy or partial duodenectomy, one or both, give as high a percentage of satisfactory results. In an address delivered by Frank H. Lahey before the Province of Quebec Medical Association in 1928, the speaker stated that an effort had been made by him by means of correspondence to discover an instance in which radical resection on account of duodenal ulcer had been performed upon a surgeon. He said at that time that he had been unable to discover a single instance in which this procedure had been carried out.

At the Clinic, Mayo says, they see about the same percentage of marginal ulcers after partial gastrectomy for ulcer of the duodenum as they see following gastroenterostomy. The great majority of operations of gastroenterostomy were not done at the Clinic. An important consideration is that, if gastroenterostomy is done and later gives rise to trouble, it can be disestablished. On the other hand, Mayo states that he is sorry for the surgeon who must again resect a portion of the remaining gastric pouch following partial gastrectomy, to rid the patient of a secondary gastrojejunal marginal ulcer.

Two series of cases in which 500 simple gastroenterostomies were done for duodenal ulcer and 100 similar operations for gastric ulcer are reported by Donald C. Balfour. The cases of gastroenterostomy for duodenal ulcer consisted of consecutive operations performed at the Mayo Clinic during 1918 and 1919. Balfour draws attention to the fact, which is of first importance, that the operations were performed in most instances in chronic cases. Careful survey of the series showed that 87 per cent of the patients obtained relief, which they had been unable to obtain by any other means, although 17 per cent of the cases in this group found it necessary to make certain adjustments in diet and some of them depended upon the occasional use of alkalis. In this connection, Balfour draws



attention to the fact that the causes of dyspepsia are so manifold that it cannot be expected that gastroenterostomy will protect the patient against all possibilities, such as, for instance, cholecystitis and pancreatitis. In 13 per cent of the series in which the patients did not obtain permanent relief from operation many of the causes of failure are not related to the stomach or duodenum. In this connection, Balfour points out the significant feature that the average age in the cases which obtained relief was almost ten years higher than in the cases which did not obtain relief, namely, 36.5 and 44.8 years, respectively.

There were 9 operative deaths in the 500 cases, or 1.80 per cent. During the five years following operation the number of deaths was approximately two-thirds of that which is to be expected, according to actuarial figures, among the white population of the United States at the same age. In no case did perforation of the duodenal ulcer occur following operation. Nine per cent of the cases had one or more hæmorrhages following operation, but it is significant that only one of the 500 died from hæmorrhage. After most careful investigation of the patients operated on again elsewhere, as well as those operated upon at the Mayo Clinic, Balfour was only able to find record of gastrojejunal or jejunal ulcer in 16 cases, that is, a total percentage of 2.36 per cent occurred during a period of ten years or more after operation. Balfour stresses the importance of this fact, since this incidence of recurrence is considerably less than the operative mortality rate of more radical primary operations carried out by even the most experienced surgeons.

Although the surgical staff at the Mayo Clinic has always subscribed, and still subscribes, to the belief and practice that removal of the lesion, if it be reasonably possible, should be practised in the case of gastric ulcer, Balfour is, nevertheless, able to report 100 cases in which gastroenterostomy alone was done for this complaint. He emphasizes the point that the group of cases studied in this report represents lesions which were relatively irremovable. The operative mortality in this series of 100 was 3 per cent; 79 per cent of the patients, five years or more after operation, were relieved. In 50 per cent the relief had been complete, and in another 29 per cent the patients considered the results of operation to be good. In 4 per cent the result was classified as fair, whereas in 17 per cent only, the results were poor. In no case did gastrojejunal ulcer develop as a complication after operation.

That there is a definite tendency in certain clinics for the pendulum to swing away from radical surgery is indicated by two papers contributed by Deaver and Burden, and by Judd and Hazeltine, respectively. The two former suggest the simple procedure of partial removal of the pyloric sphincter in order that regurgitation of duodenal contents into the pyloric antrum may occur, so as to alkalize the gastric contents before they are forced into the duodenum. The total number of cases treated by them in this way

since 1927 is 81. They believe that the results have been at least as satisfactory as from any operation they have used in similar cases, insofar as symptomatic relief and post-operative x-ray findings are concerned. They point out, what is obvious, that the operation is simple, and yet the results are equally satisfactory and the post-operative complications and late sequelæ are much less hazardous than those following gastroenterostomy or gastrectomy.

Working along similar lines, Judd and Hazeltine report the experiences at the Mayo Clinic with local operations upon the duodenum, which they believe can be performed in about 50 per cent of the cases of duodenal ulcer. In this group they believe better immediate and ultimate results will probably follow than in gastroenterostomy. They report 1,363 cases with a mortality of 0.44 per cent; 90 per cent of the cases have obtained satisfactory results. In addition to the actual removal of the ulcer by means of the cautery or scalpel, the anterior part of the pyloric sphincter is excised, as in the operation described by Deaver and Burden. With this removal of muscle they believe that everything is accomplished that gastroenterostomy can accomplish, and in addition the ulcer is removed. In cases in which multiple ulcers are encountered and in which it is not possible to remove all of them, they believe that it is probably best to remove the anterior ulcer, close the opening in the duodenum and then to complete the operation with gastroenterostomy.

Despite his advocacy of the type of pyloroplasty with which his name is associated, Horsley expresses the opinion that gastroenterostomy has probably the largest field of any operation in the treatment of peptic ulcer. He believes it should be used when the duodenal ulcer is large or the adhesions are extensive, when there is marked stenosis or inflammation, or when there is a recurrent ulcer after pyloroplasty. He recommends ligation of the pyloric end of the stomach with kangaroo tendon, if stenosis is not present. He states that in his hands gastrectomies on the whole have given satisfactory results, probably because they were done, in most cases, for gastric lesions. Horsley sums up his contribution with the statement that the kind of operation done should be suited to the type of lesion present. In a few patients, however, there appears to be a tendency toward recurrence of a peptic ulcer, even after multiple operations and careful medical treatment.

In the discussion following the presentation of papers, John Douglas reported an analysis of 375 cases of gastric and duodenal ulcer operated on by the group of surgeons in St. Luke's Hospital, New York, during the six years prior to 1925. Partial gastrectomy was performed at St. Luke's Hospital only twice for duodenal ulcer during this period. In the reporter's (F. B. G.) opinion, this fact is of importance, in that it serves to indicate the attitude of the important group of surgeons serving this hospital. Douglas points

out, with reference to the fact that the results leave much to be desired, that the majority of the patients were ward cases, and that, in consequence, their post-operative care was controlled with a certain amount of difficulty after leaving the hospital. He states his belief that after-care is essential.

Donald C. Balfour stated that there were three or four things which might be said in trying to summarize this symposium. In the first place, it is obvious that no operation will give perfect results. Recurrent ulcer may and does take place after any type of operation. One operation cannot be employed for all types of ulcer. The best results are being obtained by the surgeon who knows how to select his patient for operation and how to select the operation for the patient. Finally, he thought that the most fundamental point in this whole question of conservative versus radical procedures was this, that other things being equal, that is, where the same surgeon is carrying out the different procedures, more patients will die after a partial gastrectomy as a primary operation than will develop recurrences after a conservative procedure.

During a recent twelve months' tour of many of the European and British clinics, the writer made it his business to attempt to obtain the views of the surgeons in charge with regard to gastric surgery, more particularly with reference to the surgical treatment of duodenal ulcer. For two weeks with Professor Clermont in Zurich I was welcomed as a member of the Clinic. During this time, in addition to watching work in the wards and in the operating room, I had an opportunity for many conversations with both the noted chief and his capable first assistant, Winterstein. Professor Clermont has very fixed ideas with reference to the treatment of duodenal ulcer. His views on the matter are, that, if surgery is to be employed at all, only a radical resection of the greater part of the stomach with an end-to-side anastomosis is justified. I believe that I am right in stating that Clermont believes that gastroenterostomy has no place in the treatment of duodenal ulcer, nor is he in favour of conservative resections.

In Stockholm a similar radical procedure is carried out by Professor Soderlind whom I watched perform one of the most skilfully executed resections that I have ever seen. While in Stockholm I also watched Professor Key perform a simple gastroenterostomy for duodenal ulcer. In the case upon which he was operating moderate stenosis of the pylorus was present. I asked him whether it was his custom usually, or always, to perform gastroenterostomy, or whether the case which I had seen operated upon was an exception. He replied that for a period of about five years he had carried out resections, as a routine, but that during the past three years he had given up the radical procedure and had returned to gastroenterostomy.

At Paucher's Clinic in Paris I watched the most radical resections performed in the most

dexterous manner possible. As is well known, Paucher is one of the enthusiasts in favour of resections of the greater part of the stomach for ulcer of the duodenum.

It is a matter of common knowledge that, in the German and Austrian clinics, resection is popular; I believe, too, that it is their protagonism which has been responsible for the popularity, limited though it be, of radical surgery in the treatment of duodenal ulcer on this continent. It is evident, I believe, that the European surgeons who are performing resections are of the opinion that if resection is to be carried out almost the whole stomach must be removed, a sufficient part being left to act simply as a tube connecting the oesophagus to the jejunum.

With the exceptions indicated above, I believe I am right in saying that European surgeons, including those of Britain, have either not employed resection methods, or, having employed them, have discarded them. I watched many surgeons in Paris operating for duodenal ulcer, but, with the exception of Paucher's work, I did not see a resection performed. I watched several of the London surgeons, more especially Mr. Walton, operating upon many duodenal ulcers, but in all cases posterior gastroenterostomies were carried out.

The writer believes that the reason for the greater popularity of sub-total gastrectomy in Central Europe is primarily economic. It is the custom in this country to advise all patients operated upon by gastroenterostomy to avoid dietary excess of all sorts, and as a rule a definite outline of a suitable diet is given. Such a procedure is reasonable in most of the English-speaking countries, and is, I believe, responsible for the high percentage of good results following gastroenterostomy, or the conservative type of resection performed by some surgeons. In Central Europe the great majority of the population must return to a diet composed of black bread, cheese, beer, and, occasionally, sausage; consequently, whatever operative treatment is employed it must be one which will, for all time, preclude the possibility of further ulcer, even though the patient's life be jeopardized by the procedure.

Recently a very valuable contribution<sup>2</sup> has appeared in English upon the surgical treatment of duodenal ulcer by radical methods. This article is prepared by Finsterer, of Vienna, and Cunha, of San Francisco, and reports the cases operated upon at the Mariahilfer Hospital in Vienna. As is well known, this clinic has been foremost in its protagonism of sub-total gastrectomy for duodenal ulcer, and the technique used there has been developed to a very high degree. Particular attention is drawn in this article to the operation devised by Finsterer in 1918, which he calls, "resection for exclusion". The statement is made that during the past ten years gastroenterostomy has not been performed at this clinic for gastric or duodenal ulcer except in rare instances in the aged. These authors.



insist that in cases of a normal sized stomach, at least two-thirds of the organ must be removed, and in a highly dilated stomach, three-quarters is resected. In resection in which the duodenum is also removed, healed cases, after three years, gave a percentage of 93.4. In the cases in which the duodenum was not resected, but gastrectomy performed, 90 per cent were healed. Finsterer and Cunha express the opinion that in non-resectable ulcers of the duodenum, "resection for exclusion" should be preferred to simple gastroenterostomy.

Since the war they have performed 566 resections of the duodenum with 18 deaths, a percentage of 3.1. In 429 cases in which a Hofmeister-Finsterer modification of Billroth II was performed, there were only 10 deaths, a mortality of 2.3 per cent. Finsterer and Cunha draw attention to the fact that in their modification the jejunal loop is movable and consequently traction on the suture line does not occur. In 92 cases of resection for exclusion (Finsterer) in which the pylorus was left *in situ*, there were two deaths. In 34 cases in which the pylorus was resected, the mortality rose to 14.7 per cent.

I was particularly impressed with the opinions expressed, and the procedure carried out by Prof. D. P. D. Wilkie, of Edinburgh. He expressed the view that in cases of stenosis simple gastroenterostomy suffices. This, I believe, is the opinion of all surgeons except the most radical resectionists. He further agreed with the frequently expressed opinion that in cases of ulcer of the duodenum, not accompanied by stenosis in the neighbourhood of the pylorus, the danger of inadequate healing of the ulcer and of the development of jejunal or gastrojejunal ulcers makes it desirable to employ some other procedure. Wilkie has adopted for this purpose the operation of gastroduodenostomy, for which he has devised a special technique. I saw him perform one of these operations and am satisfied that it is the method of choice for the type of case for which it is devised. The essential feature of the operation is adequate mobilization of the duodenum so that an anastomosis between the anterior surface of the pyloric antrum and the second part of the duodenum can be carried out. Clamps are not employed nor, as a matter of fact, are clamps employed for any form of gastric surgery by most of the European surgeons. The aim of the operation is to sidetrack the pylorus and first part of the duodenum and to re-establish a communication between the stomach and the second part of the duodenum in such a way that the centre of the stomach, which is four or five centimetres in length, is opposite the point of entry of the bile and pancreatic duct.

Mr. Wilkie told me that he had performed about one hundred of these operations within the past few years, and that he was more than ever satisfied with the procedure. As compared

with the radical interference which characterizes the resection methods the operation is trivial.

By a curious coincidence upon the very day on which this review had been turned over to my secretary for final typing, I received a copy of an article written by Urban Maes<sup>3</sup> upon reflections induced by the 1930 Symposium of the American Surgical Association on Peptic Ulcer. As the writer (F. B. G.) has a very great admiration for the skill, erudition and the surgical judgment of Maes, the arrival of a statement of his reflections was received with enthusiasm. In this contribution, Maes, first of all, deplores the fact, which is evident, that the introduction of the personal equation by the various surgeons who contributed to the Symposium wrought statistical disaster. At the same time he properly, I believe, comforts himself by the thought that the long view can be equally well achieved by general considerations as by cold figures.

After reference to the subject of medical treatment, which in Maes' opinion is not free from danger, and is, in the long run, less satisfactory than is frequently thought to be the case, he continues with an analysis of the Symposium contributions and fortifies them with several wise observations of his own. The essential difference in location, in pathology, in life history, and especially in the tendency of gastric ulcers to undergo malignant change, differentiates ulcers of the stomach from those of the duodenum. He points out that the consensus in the American Surgical Association is that they should be so differentiated.

Maes also points out that the fact that gastroenterostomy was done in by far the largest number of cases reported is of the utmost importance. Particularly, he draws attention to the fact that even in gastric ulcers the results of simple gastroenterostomy have been good.

Maes believes the failures following gastroenterostomy to be due to the following conditions:—

Gastroenterostomy is one of the operations in which technique has been standardized but not the indications. In consequence, it is performed where it should not be, in cases eminently fitted for other measures and totally unfitted for it.

It fails because it is done upon the suspicion instead of the demonstration of ulcer; because of technical errors; because the pre-operative preparation has been inadequate, because foci of infection have not been eliminated; because of inadequate post-operative care, and because of post-operative indiscretions; it fails because of extraneous factors, such as individual susceptibility to ulcer; and, finally, it fails because other concurrent lesions have not been corrected. But, he says, even with all these causes for possible failure, the unfortunate statistics published from Mount Sinai Hospital of a total failure of more than 50 per cent and of a 30 per cent subsequent incidence of marginal ulcer, have rarely been equalled.

Maes concludes his comment by quoting W. J. Mayo, who speaks of surgery that is done in good faith and bad judgment, and quotes the following wise remark of Kipling's:—

"Any man who knows what he is doing, remembers what he has done, and can estimate the probable consequences of what he is going to do, knows also what he ought to do. That is the beginning of conscience, and I grant you it is an infernal nuisance."

"Perhaps it is," says Maes, "but only a combination of good faith and good judgment, with a liberal admixture of conscience and a literal application of the Golden Rule, can solve

the problem of the right method of treatment for peptic ulcer."

Might not all surgical teachers profitably attempt to inculcate into the embryo physician and surgeon, for their guidance, Maes' delightful statement with the substitution of the words, "of each individual patient", for his last three words.

#### REFERENCES

1. *Ann. Surg.*, Oct., 1930, 92: whole issue.
2. FINSTERER AND CUNHA, *Surg., Gyn., & Obst.*, 1931, 52: 1099.
3. MAES, *Am. J. Surg.*, 1931, 12: 1.

## Clinical and Laboratory Notes

### AN INSTRUMENT OF USE IN THE REPAIR OF HERNIÆ BY LIVING SUTURES

BY WALTER G. CARSCADDEN,  
M.B., B.Sc. (MED.)\*

Toronto

One of the earliest advocates of the use of fascial sutures in the repair of inguinal herniæ was McArthur<sup>1</sup>, and in 1904 he first described his use of a strip from the external oblique muscle. However, the use of fascial suture never became popular until Gallie & LeMesurier<sup>2</sup>, in 1921, proved, both experimentally and clinically, that strips of fascia lata used as a suture in a hernia repair lived and became an inherent part of the tissue. Since then the use of this method has been steadily increasing. Coley and Burke<sup>3</sup>, although not able to equal the good results reported by Gallie and LeMesurier<sup>4</sup>, agree that fascial sutures should be used in the repair of recurrent and ventral herniæ and in inguinal herniæ where the conjoined tendon is deficient. Lyle<sup>5</sup> goes further and advocates using fascial sutures as a routine in all cases. He, himself, reserves the Gallie method for direct and recurrent cases and adopts the McArthur repair for ordinary indirect inguinal herniæ.

At the Presbyterian Hospital in New York, it has been the custom to use a strip from the fascia lata in those cases of direct or recurrent hernia where the hernial ring is unusually large, but in cases where the opening is not large a strip, or strips, from the aponeurosis of the external oblique have been found sufficient.

McArthur tied his aponeurotic suture to a large needle. Gallie devised a special broad needle which is attached directly to the fascial strip. When using the aponeurotic strip it is difficult to use it all when the needle is attached directly to it and when using the Gallie needle on a fascial strip the knot on the needle makes a rather large

hole in the tissues. Auchincloss<sup>6</sup> tried to avoid this difficulty by using a small Spencer Wells artery clamp which had the tips of its jaws ground flat, to shove through the tissue like a Reverdin needle and to pull the fascial strip back. Using this principle, I devised a clamp-needle which has been in use at the Presbyterian Hospital for the past year and which has proved to be quite satisfactory.

The clamp-needle (Fig. 1) is approximately the same size and length as an ordinary Hagar-Mayo needle holder. The jaws are long and are set at right angles to the handles and are so curved as to enable one to take a good bite of tissue on either side of the site to be sutured. The jaws, being set at right angles to the handles, closely simulate the feel of a needle in a needle holder. The jaws are bayonet-shaped near the tips and are serrated to within 2 mm. of the end. The lack of serrations at the tips makes it possible to have the point of the closed clamp sharp

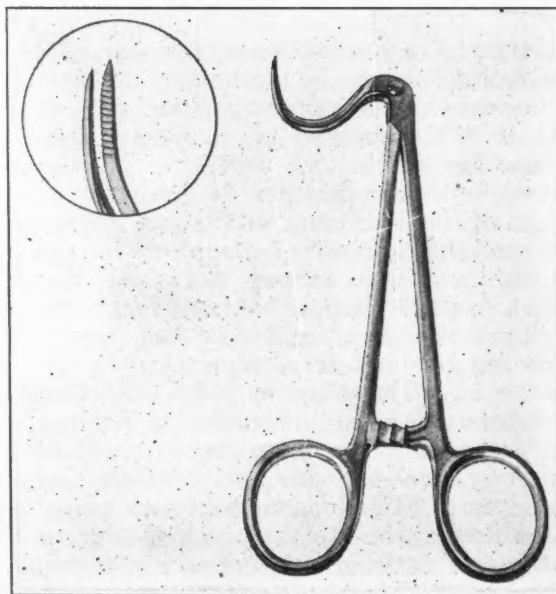


FIG. 1.—Clamp-needle closed showing the sharp bayonet shaped point and the fully curved jaws set at right angles to the handles. (Insert) Jaws open showing the extent of serrations.

\* Of the Surgical Staff of St. Michael's Hospital, Toronto, Canada. The designing of this needle was carried out while at the Presbyterian Hospital, New York.



enough to go through the toughest fascia. The base of the jaws is about the same diameter as the base of a Crile artery clamp, only the jaws

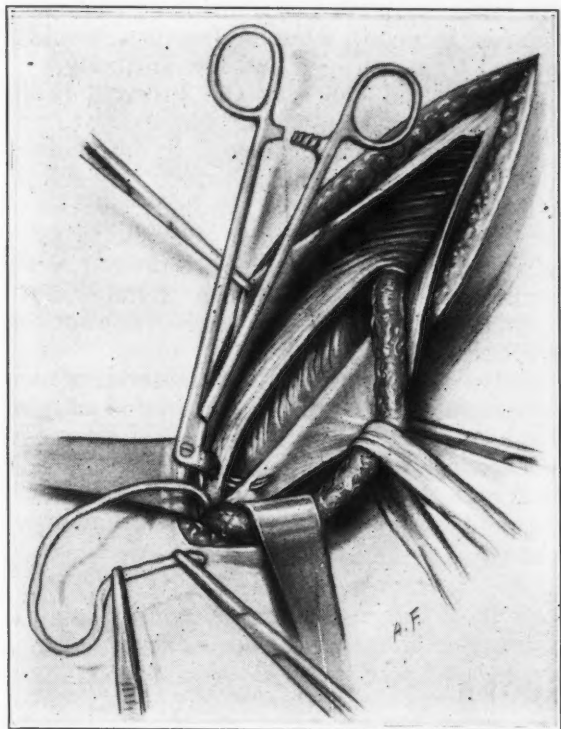


FIG. 2.—Illustrates the ease with which the conjoined tendon and Poupart's ligament can be picked up together. Also note that assistant holds the end of the fascial suture with an artery clamp and keeps up adequate tension with smooth forceps held in the other hand.

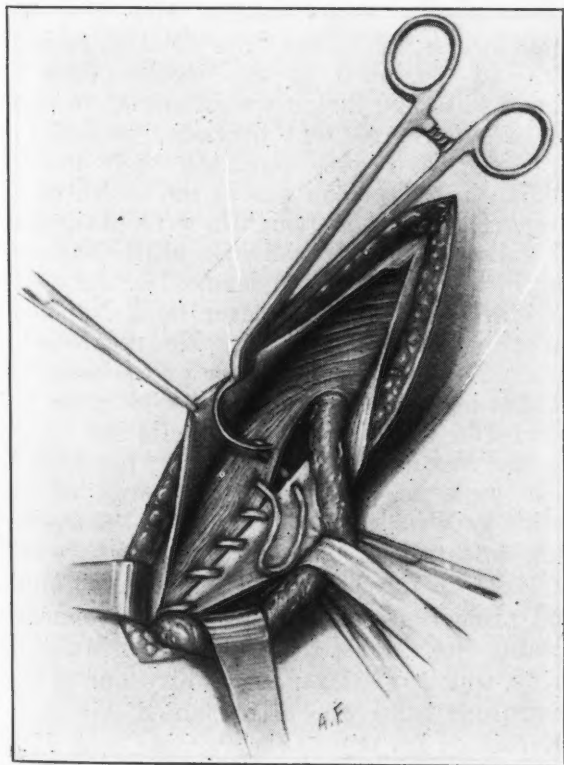


FIG. 3.—Illustrating Reverdin needle principle of the clamp-needle.

are slightly flattened and ground oval so as not to catch any tissue between them except at the serrated portion.

Illustrations 2 and 3 show the clamp needle in use repairing a hernia with a strip from the medial leaf of the aponeurosis of the external oblique, after McArthur. The clamp-needle is inserted through the conjoined tendon and then down under the attachment of Poupart's ligament to the pubic spine. The jaws are opened slightly and the assistant feeds the end of the aponeurotic suture between the serrated part of the jaws. Only the distal 1 c.m. of the suture is crushed. The assistant is careful to use only a plain dressing forceps to grasp the middle portion of the fascial strip. The suture is carried laterally as a continuous living suture and takes the place of the interrupted sutures in the usual Bassini repair. The suture is locked at two or three points with silk or fine chromic catgut. The entire strip can be utilized. With this instrument it is possible to do this type of repair as quickly as inserting the row of interrupted silk or chromic gut sutures and at the same time to make holes of minimal size in the tissues.

Although the McArthur repair only is illustrated, the clamp-needle is equally useful when using a strip from the fascia lata. It is easy to lock the end of the suture by pulling the suture through itself, as described by Gallie.

NOTE.—This clamp-needle was made for me by George Tieman and Company, 107 East 28th Street, New York, N.Y., and also by J. F. Hartz Company, 32 Grenville Street, Toronto, Canada.

#### REFERENCES

1. MCARTHUR, *J. Am. M. Ass.*, 1904, 43: 1039.
2. GALLIE AND LEMESURIER, *Canad. M. Ass. J.*, 1921, 11: 504.
3. COLEY AND BURKE, *Am. J. Surg.*, 1927, 2: 1.
4. GALLIE AND LEMESURIER, *Canad. M. Ass. J.*, 1923, 13: 469.
5. LYLE, *Ann. Surg.*, 1928, 88: 870.
6. AUCHINCLOSS, personal communication.

#### THE NEWER AIDS TO DIAGNOSIS AND PROGNOSIS IN TUBERCULOSIS\*

Under the above title Doan has collected four laboratory methods which have either been proved clinically or are at present being tested as aids in diagnosing tuberculosis and offering a prognosis in the individual case.

The first of these concerns the blood count of the peripheral blood with the differential enumeration of the white cells. A single count is not reliable and the determination should be repeated often. The point of greatest importance is the ratio of monocytes to lymphocytes (the M/L index). If the absolute number of monocytes approaches that of the lymphocytes, i.e., the ratio is high, the prognosis is not good. It is worth reiterating that it is not the single count

\* C. A. Doan, *Medical Clinics of North America*, 1931, 14: 279.

that should be relied upon but actually the trend of the index over a period of time. To cite a specific instance. Should there be a monocyte count of 2,000 cells per cubic millimetre in two persons with tuberculosis, a count indicating in both cases a spread of the focus, the prognosis is better in the first if the lymphocyte count is 7,000 than in the second where the lymphocyte count is only 2,000 cells per cubic millimetre. This observation has been well checked clinically and is worthy of wider application. Medlar would also have one not neglect the polymorphonuclear leucocyte, as he has frequently predicted abscess formation and cavitation in the presence of a high count of polymorphonuclear leucocytes.

The second aid cited is a precipitin test, using as antigen a phosphatide fraction recently isolated by Anderson of Yale. Using spinal, pleural, joint and ascitic fluids in 350 cases, Doan has had the diagnosis checked in the majority of instances. Not only is the patient's serum or exudate used against the phosphatide as antigen but an antiphosphatide rabbit serum is used against the patient's fluids as antigen. In early tuberculous meningitis free antigen is often found

with an antiphosphatide rabbit serum. Both these tests are also proving of use in prognosis. For example, if phosphatide antigen is present and low antibody the prognosis is bad; if there is no antigen and a high antibody content the prognosis is good, while quiescence would be indicated by no antigen and low antibody.

The third aid concerns the tubercle bacillus itself and is based on certain observations made by Petroff on the morphological differences of virulent "S" colonies and avirulent "R" colonies. The latter are long, beaded, strongly acidfast and branching while the former are short, faintly acidfast and Much's granules are present. Thus an enumeration not only of the number but of the characteristics of the bacilli present may prove helpful.

Finally, there remains the method of serial x-ray plates in children over a period of years, when developing tuberculosis can be followed and diagnosed early.

Tuberculosis still offers an inexhaustible field for careful observations and application of new methods.

ARNOLD BRANCH

## Men and Books

### THE MEDICAL HISTORY OF BRITISH COLUMBIA\*

By A. S. MONRO, M.D.,  
Vancouver

JOHN McLoughlin, 1784 to 1857

In the early annals of British settlement on the north Pacific coast of America, there is no more interesting and romantic character than that of Dr. John McLoughlin, chief factor of the Hudson's Bay Company, from 1824 to 1846. McLoughlin was in charge of all their operations in that vast territory extending from Alaska to California, and from the Rocky Mountains on the east to the shores of the Pacific on the west. Styled by some of his confrères "Emperor of the West", on account of the vast territory over which he exercised the powers of an absolute monarch, yet his reign was characterized by the exhibition of such sound justice, such wise and humane treatment towards those whose lives he controlled, that to-day he is known as the "first citizen of Oregon" and his memory is respected and revered by the people of that State.

Dr. John McLoughlin was born at Rivière du Loup, Quebec, October 22, 1784. While still a boy, his father was drowned, and his mother, with her two boys, John and David, moved to the home of her father, Malcolm Fraser, and

there, in the grandfather's old stone mansion overlooking the St. Lawrence, the boys grew up. They caught a military presence from the soldier grandfather who had brought a Highland regiment with him to America and which, after the victorious campaign of Wolfe, remained to colonize these colonial domains. Here they read Scotch stories, heard the tales of Highland history, and the music of the bagpipes and the sight of kilts and tartan were familiar to them. The brothers were sent overseas, probably to Edinburgh, and were pursuing their medical studies when Napoleon was at the zenith of his power. Dr. David McLoughlin went to the wars and followed the Iron Duke until Napoleon went into exile at St. Helena. Dr. John McLoughlin said "I could never fight Napoleon, I admire him too much". He returned to Canada. The lure and glamor of the west, the fact that his uncles, the Frasers, were great and powerful in the fur trade, no doubt led him to join the Northwest Company, the partners of which were so aptly styled "Lords of the North" by Washington Irving in his "Astoria". Birth, talent, and a magnificent presence (he was six feet three inches in height) brought rapid promotion and soon he was in command of Sault Ste. Marie. Here he met Margaret McKay, widow of Alexander McKay, one of that adventurous band who accompanied Alexander McKenzie on his trip to the Pacific Coast, 1793. This was the first party of white men to cross the continent and recently a memorial tablet

\* The first paper in this History can be found in the *Journal*, 1931, 25: 336.



has been unveiled near Bella Coola to commemorate the event. When John Jacob Astor planned to enter the fur trade on the Pacific Coast, he went to Montreal to find the men for his enterprize. McKay met Astor. They liked each other and became partners. McKay, proceeding around the Horn on the *Tonquin*, finally reached the mouth of the Columbia and there the fur traders built, on the site of Astoria, a trading post for the new company. The story by Irving is one of the most fascinating tales of the fur trade. After eight years of patient waiting for a missing husband, word came by a fur brigade from the Columbia, that her husband had been killed at Nootka when the *Tonquin* and all her crew had been sacrificed by a murderous band of Indians of that coast. Margaret McKay, now a widow, married Dr. McLoughlin at the Lake Superior Fort. A few years later McLoughlin was in command at Fort William and in the meantime, two children were born, Eloise and David. An accident, the capsizing of a canoe and long immersion in the cold waters of Lake Superior, almost cost him his life. When carried into the Fort nearly dead, he was the sole survivor of the accident. His hair, which up to that time had been described as golden—the Indians called it “sunshine”—turned completely white, and later on the Columbia, his waving white locks and commanding presence, led to the appellation of “The White Eagle”, given him by the Indians.

In 1816, the intense rivalries of the Nor'-Westers and the Hudson's Bay Company culminated in the Battle of Seven Oaks, a point a few miles north of Winnipeg, at which Governor Semple of the Hudson's Bay Company and twenty of his men were killed. A monument now marks the spot, erected some thirty years ago by the Countess of Selkirk, the last of that illustrious line whose name is so unforgettably described in “The Annals of the History of Western Canada”.

The wedding of the rival fur companies is historic. When the French and English were fighting at Waterloo, two rival fur companies were fighting in North America, the Hudson's Bay and the Northwest. When the smoke of battle over there cleared away, the British Parliament saw the smoke of battle over here and called a halt.

So the hoary old Hudson's Bay Company that had slumbered for a century proposed to the young Northwest Company of Montreal, and both sent their best men to London to discuss the marriage dowry. It was plainly a wedding of capital and labour. The Canadian company had nothing but her hands, her courage, and her magnificent exploration. The London bridegroom had the money-bags of nobles and control of the Bank of England. In the midst of the nuptial settlement a young

Canadian doctor startled them all with the boldest speech that had ever rung in those conservative warerooms. He was a study, that courageous young doctor of locks prematurely white and flashing eye, that free-born spirit that had breathed in liberty on the banks of the St. Lawrence.

“My Lords and Gentlemen, I plead for better terms! Since the days of Prince Rupert this monster monopoly has sat supinely on the banks of Hudson's Bay and shut out Canada from her birthright. Did we seek extended settlement? It would drive away their game. Did we attempt to trade in furs? They claimed the only right. Westward, beyond the basin of Hudson's Bay there lay an open field. To this the merchants of Montreal sent out their traders. We scoured the forests and threaded the streams. We sought new tribes and won their friendship. We explored the Saskatchewan and the Athabasca. Our men it was that traced the Mackenzie and planted the flag on the polar ocean, and turning back found a way across the mountains to the Pacific itself. While the Hudson's Bay Company waited we ran. We built up posts in remotest wilds, we discovered new waterways, we established trade. When the profits began to flow in, the Hudson's Bay Company began to rub its sleepy eyes and claim the fruits of our toil. They claimed our trading fields and shot our traders. To obstruct our work they threw the Red River settlement across our path, cutting communication with Montreal and blockading our supplies. They prohibited their settlers from selling provisions and tried to starve us out. They used their money to buy over our traders, and when bribes would not suffice they shot us in the forest. Is this the condition of British subjects? No wonder we fought for our rights. And now you ask us to ‘share equally’ the profits of the trade. I do not object to the union,—God knows I regretted the war,—but ought we to give equal share of those profits they never raised a finger to obtain, nay, did all they could to discourage and destroy? What reward have we for those years of toil and trial if we hand over the moiety now to a rival? It is not right, it is not just, and on behalf of the Northwest Company I contend for better terms.”

So spoke young McLoughlin, in that London wareroom over one hundred years ago. The very clerks, amazed, stopped scratching with their quill pens in the dim candle-light to listen. They watched him with breathless interest, the Canadian merchants proud of their champion, the British baronets and stockholders wondering if of such stuff was made the rebels of the American Revolution. But he was not yet done.

“Gentlemen, if I contend for better terms

for ourselves, what shall I say for our voyageurs, yours as well as ours, who upon a pittance of seventeen pounds a year must man our boats and pack our furs? Wading in icy waters, cordelling canoes in rocky torrents, transforming themselves into beasts of burden at every portage, working eighteen hours out of the twenty-four, cut off from all refinements of social and civilized life, condemned to exile and rapidly sinking to the level of savages, all this that the inordinate profits of their muscles and sinews may pour wealth into the coffers of this trade. Gentlemen, let us consider the hardships of our employees' lives and realize that seventeen pounds a year is beggarly recompense for service such as theirs."

It was a new thing for a factor in the fur company to utter a sentiment like that. But, alas! the doctor was too direct for a diplomat. Even the merchants of Montreal were willing to profit by the serfdom of those French-Canadian voyageurs and thought their philanthropic favourite had gone too far. One vote, one voice, could not bring better terms, but one thing the doctor could and did do. John McLoughlin never set his name to the articles of the agreement.

That speech was not forgotten. The Board admired and yet they feared him. He was the most popular and energetic of all the Northwest leaders. He must be quieted, he must be honoured, and, more than all, the great Northwester must have room for executive sway. He must rule in Canada, or as far as possible from Canada. No intermediate ground would do. About that time the American Congress had agreed with Parliament upon a joint occupancy of a certain wilderness called Oregon. The very place! A sort of Siberia, far off. Dr. John McLoughlin was delegated with absolute power to the Columbia Department. He knew it was a banishment, but he knew too, that he would be king in that realm beyond the mountains.

George Simpson, Governor of the Hudson's Bay Company, was appointed Governor of the Consolidated Fur Companies and soon after Dr. McLoughlin's return to Canada, it was arranged that he take up his new command at Astoria which had been held by the Nor'-Westers since 1812. On the long journey from Fort William to Astoria, the route followed was that taken by the fur brigades, via the Lake of the Woods, Fort Garry, Lake Winnipeg, up the Saskatchewan to Edmonton; across the Rockies by Athabaska Pass, first traversed by Thompson of the Northwest Company in 1811, and Canoe River to the Big Bend of the Columbia, past what is now Revelstoke, Nakusp, through the Arrow Lakes, Trail, Fort Colville, Walla Walla, and the Dalles of Astoria. Accompanying him besides his family and trading

staff was the Fort physician, Dr. Barclay. Arriving at Astoria he found the situation unsuitable, being too close to the ocean to avoid visiting trading ships, and he moved his headquarters up the Columbia on the north side, opposite the Willamette River, some ninety miles from the sea.

Long after McLoughlin came to Fort Vancouver in 1824 the river bristled with danger. One dark night in 1829, the Dalles Indians, the most notorious of the river banditti, appeared before the Fort, intent on its capture and destruction of its inmates. A friendly chief had rallied his forces to aid the allies. Next morning McLoughlin called a council and one by one the hostile chiefs were admitted. James Douglas, McLoughlin's chief lieutenant, was there, as were also the chiefs supporting the Governor. The hostile chiefs were sullen, when into their midst came Colin Fraser, a six-foot Highlander in kilts and flowing plume, playing the bagpipes. Up and down the great council hall he strode and played an hour while they waited for McLoughlin. The savages were so subdued they forgot their warlike errand. While still the piper played, McLoughlin entered with a treaty ready drawn up that they would never molest Vancouver. It was signed, presents were distributed and the hostiles departed happy. Incidents such as these were not uncommon and in addition there arose the graver problem of what to do with the incoming settlers. Although a tiny stream at first, they gradually increased in such numbers that in twenty years it settled the question of the Hudson's Bay Company continuing as a fur-trading monopoly and also decided the possession of Oregon as British territory. In handling these difficult problems, McLoughlin displayed a wise judgment and his firm but humane policies won for him the name of the "Father of Oregon."

The events of most interest and those which gave the greatest pleasure to the people of the Fort in these days was the coming and going of the fur brigades. One of the most colourful was the annual fall trip of the Spanish Brigade, an event eagerly looked forward to by all. Led by McLoughlin himself with his chief officers in the vanguard, the gay cavalcade with its long array of French traders in scarlet belts and Canadian caps, with their picturesque Indian families, the plumes of men and women dancing and waving in the wind, was as brilliant as a hawking party in the days of mediæval song. Along the valleys, gorges and canyons the brigade made its way, Mt. McLoughlin on the summit of the Cascades a conspicuous landmark on the southern trail; then over the Siskiyou and the Spanish border is crossed; down past Shasta, (first described by Ogden) on to "the valley of the Sacramento" and the brigade finally terminated its long trek in San Francisco



where the Spanish Governor, General Valejo, held sway.

In 1838 McLoughlin went to London. Many motives brought this about. He was entitled to leave of absence and his holiday was long overdue. Troubles with the Russians at the Stikeen—the firing of Baron Wrangell's men on Peter Skene Ogden when he attempted to pass the Russian strip of shore—led to vigorous protest, and complaint was lodged by the Hudson's Bay Company at their London headquarters. The London papers were full of "the outrage upon our traders in those distant seas."

Four years Lord Palmerston and Count Nesselrode had been negotiating over the privileges of the shore-strip. Four years Dr. McLoughlin had been piling up supplies that the Russians would have been glad to purchase. "Let us go to Europe and settle it," wrote the governor on the Columbia to the governor at Sitka. To some who did not understand the doctor's statesmanship—and he kept his secrets to himself and Douglas—there were other reasons for that long and tedious trip to London. Some said that Sir George Simpson had complained that Dr. McLoughlin favoured the American missionaries. Sir George Simpson, so the Hudson's Bay gossips said, had prepared the London Board to give the doctor a "wiggling" for the high hand he held on the Columbia; but when that stately form darkened the doors in Fenchurch Street the king of the Columbia was weighed at a true value, a veritable monarch come out of the west.

It was a stately occasion when the delegates of the Russian American Fur Company of St. Petersburg met the delegates of the Hudson's Bay Company in a London council and discussed matters usually relegated to the cabinets of kings. The difficulty was adjusted. "And now," said McLoughlin, "we want to lease that ten-league strip of Russian seaboard." Lord Palmerston and Parliament wondered if the

Hudson's Bay Company wanted the earth. Already it controlled an extent of territory greater than all Europe. Of what value could be a barren bit of shore on that lonely northwest coast? Dr. McLoughlin knew its value better than the Russian Directorate, better than the London Board, certainly better than the English statesmen, who then regarded those distant realms as vaguely as the phantom deserts in the moon. He knew those rocky islets were rich in priceless sea-furs. For 10,000 land-otter a year the strip was leased, and further reciprocity contracted in furs and flour.

Other great schemes were incubated during that London visit; the Puget's Sound Agricultural Company, to hold that inland sea for England; a plan for posts in California just ready to drop from decaying Spanish rule; and an outreach to the Hawaiian Islands. In fact, if those American missionaries had stayed over the mountains, England held in her hand the key to commercial empire on the Pacific.

It was in 1840 that Sir George Simpson, stirred by the news of the American influx into the Oregon State, said "I will checkmate this American move if I have to depopulate Red River." To the prosperous farmers of the Red River Valley he promised to each head of a family who would move to Oregon, ten pounds sterling in

advance, goods for the journey, horses and provisions at the forts en route, and on arrival at Puget Sound, the Company would furnish houses, barns, fenced fields, fifteen cows, fifty sheep, oxen, horses, farming implements and seed. So in the following year twenty-three families, or eighty persons altogether, agreed to accept Sir George's offer and met at a rendezvous in June on the White Horse Plains, west of Fort Garry. It was in that year (1841) that Sir George Simpson commenced his famous trip around the world and on his way to the Columbia he passed a lengthened cavalcade far back in Saskatchewan,



*John McLoughlin*

toiling westward under a broiling July sun. In ox carts they crossed the plains, and scaled the mountains on horse back. They arrived on the Columbia and the leaders and head men of the Red River immigrants came to the Fort. Simpson was perturbed. He had not told McLoughlin about this scheme of settlement and no preparation had been made for them. He said "I am sorry to tell you that we cannot fulfil our agreement. We have neither horses, nor barns, nor fields for you and you are at liberty to go where you please. You may go with the California traders and we will give you an outfit. If you locate south of Columbia we will give you nothing. If you go to the Cowlitz we will help you, some. To those who will go to the Sound we will fulfill our agreement." Amazement and then rage filled the minds of the immigrants. Dr. McLoughlin was greatly distressed at the plight of these poor people who had sold their homes and after travelling 2,000 miles had been so cruelly deceived. He followed them to their encampment and in every way helped them to their destination with food, clothing, boots and horses. Slowly, wearily and disheartened they toiled through the woods to Puget Sound. Some remained there but after a severe winter and suffering many hardships, most of them moved to the Willamette Valley where their descendants still live.

The coming of these immigrants evidently spurred the Company to enter upon agricultural developments in a larger way and it was not long afterwards on the Nisqually Plains, some few miles south of the present site of Tacoma, that the Company was operating a large farm under the name of the Puget Sound Agricultural Association and which was under the management of Dr. William Fraser Tolmie. Other happenings had conduced to put Sir George in bad humour. When he arrived at the Fort, travelling with all the pomp of a potentate, Dr. McLoughlin was absent. James Douglas received him and accorded him the honours due as Governor of the Company. McLoughlin returned next day from the Sound where he had been paying a courtesy call on Commodore Wilks, whose ships were anchored there. A rapid survey of the situation by the Governor made him realize what a thin hold the Company had on the territory. He upbraided McLoughlin for protecting the missionaries and settlers, and was incensed when he knew he had entertained the officers of a visiting war vessel.

"You are not to encourage Americans in any way," said Sir George, in the positive tone bred of years of command. "The United States will never possess more than a nominal jurisdiction west of the Rocky Mountains, nor, if you do your duty, will it long possess even that. You

make a mistake in assisting these missionaries. Let them take care of themselves, refuse them favours, drive them out of the country as soon as possible." "But," interposed the doctor, standing up beside Sir George—he could look down upon him like a little boy—"What excuse can we have for driving them out of the country? They are peaceable, industrious, helpful to the Indian. By the terms of our treaty with the United States they have as good right here as we have."

"The Hudson's Bay Company was not chartered to educate the Indian," curtly responded Sir George, hitching up the wires of his glasses in a few once curly locks behind his ears. "That is no part of our business. I would not give them even a spade to till the soil. We want furs, not farms. We must tolerate nothing that interferes with our business." "Sir George prays only to mammon," was a well-known saying in the upper country.

The doctor kept his temper. Better than any one else west of the mountains he understood the policy of his company, and never had that company a more brilliantly cold and calculating manager than Sir George Simpson.

"By your management already you have lost us all that country south of the Columbia," continued Sir George.

"I lost that country?" cried Dr. McLoughlin, bristling at this unexpected charge. "England never claimed it. The company never expected to hold it. The Joint Occupancy Treaty was in itself official notice to that effect. As for these missionaries, when they come bringing passports signed by the Secretary of War, dare I treat them like Yankee skippers or overland traders?"

Sir George, by his John Bull obstinacy, was fast converting the doctor into an American advocate. He saw his error, and with the quick diplomacy for which he was noted he grasped the angry doctor's hand.

"I beg your pardon, Chief Factor McLoughlin. I beg your pardon. Your situation is indeed a complicated one. I shall take immediate measures to press this Oregon question to an issue. England cannot afford to lose this territory." How he pressed this question is hidden in the English archives.

A few days later Sir George left with Douglas to inspect the northwest coast and visit Sitka. Late that fall Dr. McLoughlin and Sir George Simpson dropped down on the Columbia on board the Hudson's Bay barque *Cowlitz* on their way to California. On the last day of 1841 they landed on the sand dunes where in a few short years would rise the magic city of San Francisco. They were royally entertained by General Mariano Guadalupe Vallejo, the "Prince of Northern California". On leaving for Monterey, Sir George remarked "England has no rivals on this coast but the Russians.



Now Mexico owes to British subjects a debt of more than fifty millions of dollars. By assuming a share of this debt on condition of being put in possession of California—" Sir George looked what he did not say. Dr. McLoughlin was silent. He too had his dreams. Dr. McLoughlin returned to the Columbia and Sir George went on across Siberia on his journey around the world.

By the end of 1843 a great tide of new settlers had arrived from across the mountains and McLoughlin had written the governing Board in London. "You must positively protect your rights here, and at once, or lose the country." No answer had come. The threats against Fort Vancouver became bolder. The Indian conspiracy, that shortly deluged the land in blood, was throwing off all concealment. McLoughlin built more bastions and strengthened his pickets. Still no answer came to his appeal for protection by the English Government. Colonists who loved McLoughlin as "The Father of Oregon" begged him to subscribe to the provisional government. Ogden advised it. Ermatinger was ready to become an American citizen. Douglas was absent in the North. Fearful of Indian war now threatening and dreading still more an international war over the possession of Oregon, McLoughlin, after long struggles between Company and conscience, after prayers for hours on his knees for God's guidance in his choice, subscribed to the provisional government in August, 1844. Six months too late came the protection for which he had been asking all these years, the British Pacific Squadron. Perhaps it was as well that the war vessels did come too late, for Captain Gordon, commander of the fleet and brother to Aberdeen, then Cabinet Minister of England, was a pompous, fire-eating, blustering fellow, utterly incapable of steering a peaceful course through such troublous times. With Gordon boasting how his marines could "draw the Yankees over the mountains," and outlaws among the colonists keen for the loot of a raid on Fort Vancouver—friction might have fanned to war before England or the United States could intervene. The main fleet lay off Puget Sound. The ship *Modiste* with five hundred marines, anchored in the Columbia off Vancouver and patrolled the river for eighteen months, men drilling and camping on the esplanade in front of the fur post.

There came also in October, 1845, two special commissioners from the Hudson's Bay Company to report on Oregon. The report was sent back without McLoughlin's inspection. They had reported against him for favouring the American settlers. Knowing well this was the beginning of the end, McLoughlin sent for Douglas to come down and take charge. The mail of the following spring dismissed Mc-

Loughlin from the service. That is not the way it was put. It was suggested he should retire. McLoughlin gave up the reins in 1846 and withdrew from Vancouver Fort to live among the settlers he had befriended at Oregon City on the Willamette.

The commissioners' report of Dr. McLoughlin irritated the London Board. "What right has a chief factor in our employ to meet those immigrants with boatloads of supplies, to nurse their sick in our hospital, and to loan them seed and agricultural implements to open up farms on the Willamette?" Across the sea there came a call to halt, and an account was demanded of Dr. McLoughlin. Strong in the consciousness of his own integrity the doctor answered: "Gentlemen, as a man of common humanity I could not do otherwise than to give those naked and starving people to eat and to wear of our stores. I foresaw clearly that it aided in the American settlement of the country, but this I cannot help. It is not for me, but for God, to look after and take care of the consequences. The Bible tells me, 'If thine enemy hunger, feed him; if he be naked, clothe him.' These settlers are not even enemies. If the directors find fault with me they quarrel with heaven. I have simply done what any one truly worthy the name of a man could not hesitate to do. I ask you not to bear these debts; let them be my own. Let me retain the profits upon these supplies and advances made to settlers, and I will cheerfully assume all payments to the company. All that I can do honourably for my company shall be done. Beyond that I have no pledges. Shall I leave these Americans to starve, or drive them from the country? Gentlemen, if such be your orders, I can serve you no longer." And so, on account of assisting the immigrants, Dr. McLoughlin resigned his position at the head of the Hudson's Bay Company west of the Rocky Mountains, and thereby sacrificed a personal income of \$12,000 per annum.

It is unnecessary to express an opinion on his character. The record of his rule in Oregon is the truest verdict on his character. His was one of the rare spirits in this world who not only followed right, but followed right when there was no reward; who not only did right, but did right when it meant positive loss to himself and the stabs of malignity from ungrateful people whom he had benefited. Most people can be saintly when a Heaven of prizes is dangling just in front of them, but fewer people can follow the narrow way when it leads to loss and pain and ignominy. McLoughlin could, and that Christ-like quality in his character places him second to none among the heroes of Canadian history. As Selkirk's name is indissolubly connected with the hero-days of Red River, so McLoughlin's is enshrined in the

heroic past of Oregon. In Hudson's Bay House in London one may look in vain for portraits or marble busts of these men. Portraits there are of bewigged and beruffled princes and dukes who ruled over estates that would barely make a back-door patch to Red River or Oregon; but not a sign to commemorate the fame of the two men who founded empires in America, greater in area than Great Britain and France and Germany and Spain combined.

Following his retirement from the Hudson's Bay Company, Dr. McLoughlin established his home at Oregon City, a few miles below Portland. Dr. Barclay had followed him there and was his constant attendant during the few remaining years of his old chief. The end came in 1857. He and his beloved wife lie side by side in the little R.C. churchyard in Oregon City. A full length portrait of him hangs in the Legislative Chamber of the State Capitol at Salem where his memory is revered as "Father of Oregon."

To complete the medical records during Dr. McLoughlin's regime on the Columbia, there is noted in the minutes of the Council of the Company, 1830, at an annual gathering of all the chief administrators from the Atlantic to Pacific and held at Norway House, Lake Winnipeg, a list of personnel at Fort Vancouver containing the names of James Kennedy, surgeon; also of Forbes Barclay, surgeon. As before mentioned, the latter followed Dr. McLoughlin

to Oregon City and ministered to him in his last illness. In the records of the same Council, 1843, we find mention made of Dr. William Fraser Tolmie who had joined the Company at Fort Vancouver in 1833. In the minutes of the Council in this year, orders were given to establish on the Straits of Fuca a post to be named Fort Victoria. No doubt coming events in Oregon had led to this action and it was Douglas himself who was sent from Vancouver to establish the new post at Camosun and now Victoria. When Dr. McLoughlin handed over the reins to

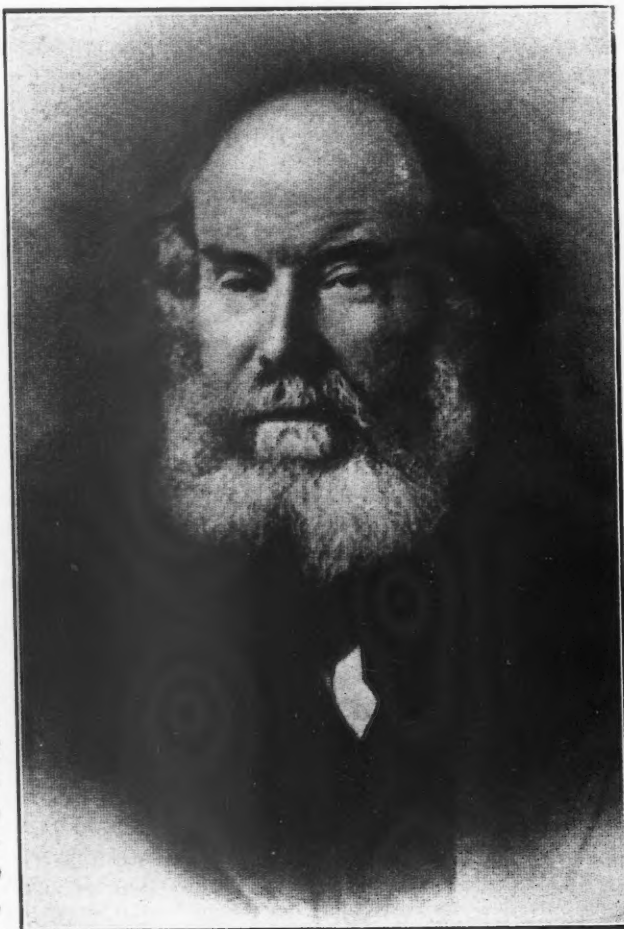
James Douglas, the latter made his headquarters at the new post of James Bay, and it was in 1849 that Vancouver was made a Crown Colony under Governor Blanshard.

#### WILLIAM FRASER TOLMIE

Although more than four decades have passed since Dr. William Fraser Tolmie died he is still remembered by the older residents of British Columbia as one of its most esteemed and prominent citizens. Almost one hundred years ago, in 1833, he first came to Fort Vancouver, Washington, as a surgeon in the service of the Hudson's Bay Company and throughout the

remainder of his life continued an active factor in the work of progress and development here. During the later years of his life he was prominently identified with agricultural pursuits, owning a valuable farm of eleven hundred acres. He was likewise well known as an ethnologist and historian and possessed an intimate knowledge of Indian affairs.

Dr. Tolmie was born in Inverness, Scotland, on February 3, 1812. He acquired his education in Glasgow, graduating from Glasgow University in 1832, in which year he crossed the Atlantic to America as a surgeon in the service of the Hudson's Bay Company. He came to Fort Vancouver on the sailing vessel *Columbia* by way of Cape Horn, stopping at Honolulu and the Sandwich Islands, arriving at



Dr. William Fraser Tolmie

the Fort in 1833. In his younger days he was greatly interested in botany and natural history, and discovered many new plants and birds on this coast, some of which were named after him. In 1833, while on a botanizing trip, accompanied by two or three Indians, he made the first attempt of any white man to scale Mount Rainier, Washington, but owing to his holiday coming to an end, he was unable to get to the summit. A peak of this mountain is now called Tolmie Peak in his honour. In 1834 he was a member of an expedition along the northwest



coast as far as the Russian boundary, now Alaska, establishing trading posts at various points for the Hudson's Bay Company and at this time also choosing the site for Fort Simpson. About 1835 he was the first white man to draw attention to the fact that coal was to be found on this coast somewhere in the north.

In 1836 Dr. Tolmie returned to Fort Vancouver in the capacity of surgeon. In 1841 he visited his native land, and returned to Canada the following year, making the overland journey by way of Fort Garry and other Hudson's Bay Company posts. Upon arriving at Fort Vancouver he was placed in charge of the Hudson's Bay Company posts on Puget Sound, with headquarters at Fort Nisqually. He took a very prominent part in the Indian war of 1855 and 1856, and as he was quite familiar with a number of Indian languages, it was through his efforts and knowledge that the red men were pacified. In 1855 he was made chief factor of the Hudson's Bay Company at Fort Nisqually, and after the company gave up their possessory rights to American soil, he removed to Victoria in 1859 and continued in its service, building at this time the first stone house erected in British Columbia and which is now occupied by his descendants.

Dr. Tolmie remained in the service of the Hudson's Bay Company and also as agent of the Puget Sound Company until 1870, when he retired to his farm, which he had purchased several years previously. He was very active in agricultural affairs and did much to raise the standard and grade of cattle and horses, importing thoroughbred stock. He also gained recognition as an ethnologist and historian, contributing valuable treatises and articles on the history and languages of the west coast natives. He gave the vocabularies of a number of tribes to Dr. Scouler and George Gibbs and these have been published in contributions to *American Ethnology*. In 1884 he collaborated with Dr. G. M. Dawson in the publication of a nearly complete series of short vocabularies of the principal languages spoken in British Columbia. To-day, the works of Dr. Tolmie stand as authoritative in the history of the north-west and this province. All through his life he was ever ready to contribute from his extensive store of knowledge to anyone to whom it would be useful, and, being at all times public-spirited and progressive, his opinions were highly valued. He remained intimate with Indian affairs until the time of his death, which occurred on December 8, 1886, when he had reached the age of 74 years.

In 1850 Dr. Tolmie married Miss Jane Work, the eldest daughter of John Work, then chief factor of the Hudson's Bay Company at Victoria. Mrs. Tolmie, who passed away on

June 23, 1880, became the mother of seven sons and five daughters. Hon. Simon Fraser Tolmie, the present Premier of British Columbia and an outstanding man of affairs in his native province, is a son of this distinguished pioneer physician.

Dr. Tolmie was a member of the local legislature for two terms, representing the Victoria district until 1878. The cause of public instruction always found in him a staunch supporter and ardent champion and for many years he served as a member of the board of education. He held many positions of trust and responsibility and was everywhere recognized as a valued and respected citizen. Generous and kind-hearted, he is still remembered for his many acts of quiet charity and for his loyalty and friendship.

In the western part of Point Grey, Vancouver, near the main entrance to the University of British Columbia, "Tolmie Street" brings to one's mind, the memory of this outstanding pioneer.

(To be continued)

#### LADY OSLER

##### A REVIEW

BY A. D. BLACKADER, M.A., M.D., LL.D.,  
*Montreal*

It is with much pleasure that we have read the brief memoir of the life of Lady Osler as presented in a small volume issued by the Oxford University Press;\* an edition, to our great regret, limited to private circulation. The author is Mr. Arnold Muirhead, one of her student guests. For many Canadians the name of Lady Osler will always be linked with that of Sir William. An unusually talented woman herself, she contributed much by her devotion to the happiness of Sir William, and by the skilful arrangement of her home services was able to extend the open hospitality enjoyed by successive generations of students both in Baltimore and Oxford, not a few of whom were permitted the use of a latch key which allowed them to enter the house and library as was most convenient to them. Even Sir William's death did not put an end to this arrangement. There were always three or four privileged students given the free run of the library and encouraged to use the garden and tennis court. After his sad passing, to which the death of his son greatly contributed, she made it her chief endeavour to further the cataloguing of his library and its careful removal to McGill University where her

\* *Grace Revere Osler: A brief Memoir* by Arnold Muirhead: Printed for private circulation for her devoted sister, Mrs. H. B. Chapin, of Boston, at the Oxford University Press, 1931.

ashes now lie enshrined with those of Sir William. The following items have been abstracted from this memoir and are presented to our readers.

Grace Revere was of French extraction. The Rivoires were driven from France by the Revocation of the Edict of Nantes, and finally settled in Guernsey, whence one member in 1715, migrated to Boston, changing his name from Apollos Rivoire to Paul Revere, a change easily made at that time. His son was the prominent silversmith and pioneer copper plate engraver whose patriotic action in the early days of the revolution was brought into fame by the poem of Longfellow. One of his descendants, John Revere, married in 1847 Susan Tilden Torrey, a grand-daughter of Captain John Linzee, a scion of a younger branch of the Earl of Crawford's family, who with his detachment from the English man-of-war *Falcon* had pounded the colonial defence works at the battle of Bunker Hill. The second child and eldest daughter of this John Revere was Grace Revere, born at 103 Boylston Street on June 19, 1854.

Grace attended school in Boston until she was eighteen years of age. She was by no means a brilliant pupil, and was brought up on lines which to-day would be considered very conventional. During the later years of her school life she was a pupil in Miss Foote's private academy. Miss Foote, an Englishwoman, had received her training under Miss Elizabeth Sewell, whose school in the Isle of Wight did much to further the higher education of women in the second half of the last century. As a consequence of her training in this school Lady Osler developed an ardent love of English ways and traditions. Perhaps not the least useful lesson learned at her school was the importance attached to letter writing in which she developed a clear, pungent and witty style which made her letters very vivid reading. From her mother she learned all the details of housekeeping, and to the very end of her life Lady Osler supervised and arranged all the domestic details of her home. As a young girl she had much personal beauty and charm and was described by her friends as a tall graceful, fair-haired girl, with fine features and blue eyes. Curiously enough she was never fond of dancing, although she encouraged others to learn, and often arranged parties to take to balls. After she had "come out", in the usual way of Boston girls, she lived with her family on Commonwealth Avenue, and her summers were spent at the Revere homestead at Canton, with occasional holidays at Bar Harbor. It was on a visit to Philadelphia that she met Dr. Samuel Weissel Gross, who was to be her first husband, a tall distinguished-looking man, the able son of one of the most famous surgeons in the United States, and who a few years later followed his

father in the Chair of Surgery at Jefferson College. Grace Revere proved a needed help-mate to him and fired him to greater efforts at a time when his ambition and spirit were flagging. The elder Dr. Gross was at that time the doyen of American surgeons, and his house was thronged by personal and professional friends whom he liked to receive and entertain. As his wife was dead, his daughter-in-law acted frequently as an able hostess in his house.

The author of this memoir states that Dr. Samuel Gross was largely instrumental in persuading Dr. William Osler to leave Montreal and accept the chair of Clinical Medicine in the University of Pennsylvania. During the five years that Dr. Osler held this appointment he was a frequent and welcome guest at the home of Dr. Gross in Walnut Street, and when in 1889 Dr. Gross was taken ill with an attack of pneumonia of a particularly virulent type, Dr. Osler was one of the three doctors attending him in his fatal illness. In his valedictory address to the University of Pennsylvania Dr. Osler made sympathetic reference to Dr. Gross's death and praised his courage, zeal and industry.

For the next three years Osler, who had just been appointed as chief of the Medical Department of Johns Hopkins Hospital in Baltimore, was kept fully occupied with organizing its various details and, when they were running smoothly, with the writing of his text-book. He managed, however, not infrequently to run over from Baltimore to Philadelphia and to visit at the house in Walnut Street. How long before their marriage the two had come to an understanding is unknown, but on February 24, 1892, the day of the publication of his text-book, Osler with a copy under his arm is reported to have entered the house of mutual friends in Baltimore where Mrs. Gross was staying, and to have thrown the volume into her lap with the words, "There! Take the darned thing. Now what are you going to do with the man?" They were married on the 7th of May following, and it is stated that Mrs. Gross and Dr. Osler entertained an unsuspecting doctor to lunch an hour before they were to be married. They were no longer very young, and had known each other for many years. A younger woman might have not felt so confidently happy with a man who at the age of forty was rather set in his ways, but Mrs. Osler from the first realized the world's prior claim to the service of this great man and with unselfish comradeship and true magnanimity did all she could to assist his work.

Their honeymoon was spent partly in Canada and partly in England, and it was on this trip that Mrs. Osler paid the first of many visits to Cornwall to which she completely lost her heart. On their return in August they settled at No. 1 West Franklin Street, which became their home for the remainder of their stay in Baltimore.



There from the first all were made welcome; relatives, friends, foreign visitors and young students resident in Baltimore. Osler was soon known as the student's friend and the title was equally deserved by his wife. Few ever went out of their way as Dr. and Mrs. Osler did so wholeheartedly, to encourage, sympathize and direct a younger generation. In their home there was no malicious gossip, no back-biting, no professional jealousy, no snubbing. Mrs. Osler ably backed him up and shouldered the main burden of the work associated with such hospitality. She it was who arranged dinner parties for Osler's friends, and wrote out the invitations, sometimes as many as thirty, and not infrequently was she left to entertain the guests when her husband had slipped away to a meeting. His marriage never cut Osler off from his friends but rather brought them closer. Her tact and management saved him from bores, and insured him that peace and immunity from petty worries, which enabled him to accomplish in twenty-four hours an amount of work which was always the marvel and envy of his colleagues. Between them they instituted the privileged order of "latch-keyers", to which we have already referred—a chosen few who were each given a key to the front door of No. 1 West Franklin Street, with free and encouraged access to the house and library. Mrs. Osler had had no children by her former husband, but in February 1893 a child was born who died within a few days of cerebral paralysis. On December 28, 1895, another son was born and christened Edward Revere after a favourite brother. To most women the additional responsibility of a son might have meant that other interests would have suffered. It was not so with Mrs. Osler. She continued to entertain and help her husband, and to look after Revere, with the aid of a black mammy and later of a Scotch governess. Nevertheless, she served on committees and interested herself specially in the work of nurses who then had neither the liberty nor the standing they enjoy to-day. Her achievements and her tireless energies were as remarkable as those of her husband.

As the strain of overwork became greater they increasingly sought relief in holidays abroad. Revere was now easily taken about with them, and with Mrs. Osler's keen eye for detail and her sense of humour she was able to get plenty of interest and fun out of her travels. Many places were visited, but few in her eyes were more suitable for a holiday than Swanage or a quiet spot in Guernsey.

As years passed Mrs. Osler began to feel anxious lest the Doctor should not be able to stand the increasing strain. It was, there-

fore, with profound relief that she heard of the likelihood of the Oxford chair being offered him. She had no doubt in her own mind as to what was best for him, and her telegram from Canada to him in England was "Don't procrastinate, accept at once." This was the decisive factor in helping him to make his choice. She knew that a change would mean a great wrench for them both, but she knew it must be braved if the years ahead were to be secured. Dismantling the house at Franklin Street was a doleful business, but was a triumph for Mrs. Osler's flare for organization. Her husband's departure for New York with a handbag, to meet her three days later at the steamer, called forth the sly remark, "Willie's motto may well be *Æquanimitas*, because he always flies when things like this are going on." She herself, however, was deeply moved by the desperate attempts of friends to keep Dr. Osler in America. She wrote to a friend, "All that you and the others expressed for Dr. Osler, all that you say of his influence touches me deeply; during these days of diversified feelings I hardly know how to express my appreciation and sympathy. It has been a very hard struggle to encourage Dr. Osler to do what I know is really best for him."

Both Dr. and Mrs. Osler slipped easily into their new life, and immediately won a host of friends. Oxford responded in a cordial manner. It was Oxford in all the glory of the summer term, and Mrs. Osler wrote enthusiastically to her mother of the gardens that were a revelation with the wonderful lilac, laburnum and hawthorne in every street and every garden. She enjoyed the dinners given in their honour at which the old college silver, hallowed by long usage, was displayed on the dining table, along with tankards and bowls so beautiful that she admitted that Paul Revere would have had to take a back seat.

Housekeeping proved at first a little difficult. The house they were in, 7 Norham Gardens, had been taken furnished from Mrs. Max Muller. Her servants were unused to a "racket" and had to be paid extra because of the number of people coming to the house. The housemaid said, "Madam, I think we had better keep *all* the beds *always* ready in this house." As soon as possible they made their final move to 13 Norham Gardens which they had altered to suit their own convenience and which from its lavish hospitality was lovingly christened "The Open Arms" by its numerous friends and as such is ever affectionately remembered by them. Here, as in Baltimore, the Oslers were friends to hosts of younger men. Rhodes scholars especially found it a home in a strange land, and the rawest of them received wise advice from Mrs. Osler, who did not hesitate to tell them that the surest way to get the most out of Oxford was

to forget temporarily their own country; to cease to boast, and not to run down English ways. Much general rejoicing took place when the Regius was made a baronet, an honour which both he and Lady Osler bore easily and unassumingly. Delightful holidays with Revere during these years were enjoyed down by the sea in Cornwall or in Wales and occasionally in Paris with her husband.

One of the offices held by the Regius Professor of Medicine was that of Master of the Alms-house at Ewelme, a lovely village a few miles out of Oxford. This "Hôpital" with its picturesque cloisters between the church and the school, all built in the fifteenth century by the Duchess of Suffolk, house thirteen almsmen, with rooms also for the Master and his family. Lady Osler found the whole place enchanting, and spent many quiet restful hours and days there while her husband wrote or browsed among the old deeds and papers belonging to the charity.

In July 1914 Lady Osler and Revere had set out on a visit to Revere's Canadian relatives, but while yet on the ocean the war storm broke and Lady Osler returned by the same boat, now painted black, and every port and window covered with blankets at night. Oxford was transformed and its Examination Schools turned into a base hospital. Lady Osler found herself elected as President of the Needlework Guild, which from its quarters in one of the University Museums laboratories was for four years to supply all the needs of the hospitals in Oxford, in bandages, bed clothing, pyjamas, shirts and the like. From nine in the morning until late in the afternoon Lady Osler directed the work of the voluntary workers and surprised all by what her husband called her New England energy. Nothing showed more clearly how Oxford and all that was British had won her allegiance than the way in which she immediately identified herself with Britain's cause. Nor was her sympathy denied to Britain's allies. When the sack of Louvain had appalled the world, and its university professors with everything lost escaped to England, they were welcomed to Oxford; houses and clothes were found for them; still more she begged successfully from her many rich friends in America, and was able to interest the Rockefeller trustees. In a letter to a friend she stated they had fifteen professors with their families, in all eighty, under their care. The Rockefeller Educational Foundation, in answer to her request, sent a grant to enable the Science professors to carry on their investigations.

All this time the "Open Arms" was more than ever meriting its name. Canadian boys and the sons of old friends on their way to France came for a night or week-end, often longer if they were sick or recovering; Canadian nurses and others engaged in war work stole down to

Oxford, whenever they could get away. Many of the officers of the Canadian Expeditionary Force had come armed with letters of introduction to the Oslers. Catering was no easy matter in the days of the restrictions and food tickets, but all received a warm welcome. As if these activities were not enough, sending parcels to men at the front occupied much time. Two hundred barrels of apples alone came one Christmas, chiefly from Canadian friends.

In addition she had to bear the constantly increasing strain of anxiety for her husband as several bouts of his old bronchial trouble developed. Like a perpetual nightmare also was their dread for Revere. After serving in the O.T.C. in Oxford, he had received a commission in the McGill University unit, with the Canadian Army Medical Corps in France, but this service did not satisfy him for long. At the end of August 1917 the long dreaded blow fell, and Revere was carried, fatally wounded, into an advanced dressing station where he came, by a sort of consoling miracle, under the care of an American surgeon who was one of the dearest friends of his parents.

Notwithstanding the blow, they did not allow their sorrow to affect the character of their home, and on the Christmas following they had the house full as usual. When the armistice brought relief to humanity they rejoiced with others, but knew that life would never be the same for them again.

His 70th birthday brought to Sir William many tributes of love and devotion, paid by both the young and old of the profession, and in his reply he referred to his wife as "one who has loved and worked for the profession, and the sweet influences of whose home has been felt by successive generations of students." Although during the long illness following his cold journey from Newcastle in September Sir William continued to joke, he and she knew better. "Sir William told me from the beginning," she wrote to a friend, "that his illness would end fatally and he is always right." And so, at the end of 1919 she sat among the bereaved friends of this beloved physician and felt the most bereaved of all. Nevertheless she managed to carry on because she knew Sir William would have wished it. Even if his body were ashes, she felt his spirit was still actively at work, and a glamour and a legend were growing up around the name of Osler, which were to influence the life of many an eager young student. Lady Osler recognized that it was possible for her by fostering the Osler spirit to win young men and their enthusiasms to the cause of humanity and to this task she devoted the rest of her life. She was desperately lonely at times, but she believed in the work of her young men, and woe betide any professor or don who did not stir himself on their behalf. She followed their careers with



encouragement and interest and rejoiced in their successes and remained the same incomparable hostess for all; no matter how many there were at her table she was always in command of the situation.

With Sir William's death she early recognized that two special tasks were imposed upon her; the preparation of his biography and the carrying out of his wishes with regard to his library. Her choice of Dr. Cushing as the biographer of her husband was a happy one, and no one rejoiced more than Lady Osler when he was awarded the Pulitzer prize for the best biography of the year. She also recognized Sir William's wish as stated in his will that the major portion of his library, some 7,600 bound volumes illustrating the history of medicine and science, should go to the Medical Faculty of McGill University. His will suggested that the books should not be sent to Canada until the catalogue, already painstakingly begun by him on original but strictly bibliographical lines, should have been completed, for he knew that continued reference to the Bodleian Library and to the British Museum would be necessary. Unfortunately for Lady Osler's peace of mind the time required for completing the catalogue was seriously underestimated. Had Sir William realized the magnitude of the task he would doubtless have left directions for the books to be handed over only at Lady Osler's death. As the years went by Lady Osler anticipated with increasing apprehension the inevitable removal of the books which would entail the dismantling of her house. Yet when her friends urged her to keep the books until she died, she replied "My New England conscience tells me it is due to McGill to let the books go." So she bravely veiled her own anguish of spirit and set herself to carry out Sir William's wishes, and the completion of the catalogue became her absorbing interest. She was constantly consulted about the purchase of books needed to fill important lacunæ, and generously contributed many volumes. She took a special interest in choosing bindings for manuscripts and books that had remained unbound at Sir William's death. She greatly appreciated the interest taken in the catalogue by all friends of Sir William and by

her young latchkeys, all of whom vied with one another in their contributions to it. Two gifts especially received her thanks: a copy of the 1653 edition of Harvey's *De Motu Cordis*, and the Dutch 1688 edition of the works of Sir Thomas Browne. As the catalogue neared completion she felt comforted in considerable measure by the unstinted praise that came from all the experts who had seen the proof sheets, and felt happy that the Osler catalogue would be a great and lasting contribution to medical bibliography. She deeply appreciated the minute care and devoted labours of Dr. Francis to make the volume in every way worthy of its great collector. The first boxes in which the books were to be packed for transfer to Canada arrived the day before Lady Osler died, and she personally superintended their arrangement, while in her thoughtful, generous and methodical manner she left a list containing a hundred names of friends, helpers and libraries to whom she wished a copy of the catalogue to be sent. Although she was not to see the catalogue in its final form, she felt that her task was done, a task to which the dedication itself of the catalogue sets the final seal of true appreciation: "To the memory of Dame Grace Revere Osler, in admiration of her courage, patience and devotion, this her last task accomplished is gratefully dedicated by the editors."

On December 23, 1927, she had had a slight stroke, but she refused to have her Christmas guests, otherwise homeless, put off. Owing to a severe complication, it was March before she was herself again. On August 31, 1928, she awoke feeling rather more discomfort than usual, and at breakfast time asked her sister and Dr. Fulton to come up to her. She felt reassured for a short time but suddenly her pulse stopped, signs of a left hemiplegia set in and without recovering consciousness, and with no sign of pain, she died a few minutes later. Three days later her beloved Christ Church Cathedral was once more crowded to the doors. Once more Osler's first and favourite copy of the *Religio Medici* lay upon a purple pall, and Peter Abelard's *O Quanta Qualia* was sung by a sweet-voiced choir.

---

Striking results including numerous instances of clinical improvement have been noted following the use of protein shock therapy. For the most part these have been seen in acute conditions rather than in those of long duration. As a routine and sole method of treatment the case for protein therapy has not been proved. It is necessary here to distinguish from this large group methods of specific immunization and desensitization

employed to relieve the symptoms of sensitiveness to specific known proteins such as those of some pollens and foods. Whenever it is proposed to use protein shock therapy in a special case, due consideration should be given to possible serious and unexpected outcomes. The present wave of popularity of injections of foreign proteins for diseases of all descriptions is likely soon to pass, as have other modes and styles.—E. E. Irons, *Bull. New York Acad. Med.*, 1931, 7: 427.

## Hospital Service Department Notes

### A COMPARISON BETWEEN EUROPEAN AND AMERICAN HOSPITALS

An interesting comparison of hospitals in Canada and the United States with those in Europe is presented in a recent number of *Nosokomeion*, the international hospital quarterly, by Dr. W. H. Mansholt, Genesheer Directeur of the Algemeen Provinciaal, Stads, en Academisch Ziekenhuis, Groningen. This is based upon his recent tour of the hospitals in a number of cities in these two countries.

The author found much to interest him. The vertical type of construction, so popular here and proved more economical in maintenance, is almost unknown in Europe. The amount of space given to kitchens, laboratories, etc., seemed almost prodigal. "Even in good, up-to-date European hospitals not even half, frequently not even a fifth, of the space is to be found which Goldwater has given as necessary or at any rate as desirable, especially for the auxiliary services." Whereas in the United States 70 per cent of the general hospitals are under private boards (and in Canada this figure would be higher), in Germany all but 12 per cent are municipal or state hospitals. Whereas many scores and even hundreds of doctors are on the staffs of our large hospitals, in Europe the hospitals of the same size would limit the work to a very small staff. Hospitals are utilized for medical education much more in America than in Europe. On the continent, hospitals with private boards, if used at all, are used chiefly for post-graduate education. Medical education in America is more concentrated. "The practically unlimited liberty of the European student to attend the lessons or not, to work hard, moderately hard, or not at all, is practically unknown in America."

The training of the nurse differs widely. While preliminary standards in Europe are not so far below ours, European training schools attach the greatest importance to practical training, to which the theoretical serves merely as a complement. Their nurses average three or four lessons a week. How different here! The author seems to be very critical of western nursing education, which strives to impart a "pocket medical training". He refers to the palatial nurses' homes with halls for theatricals, a ball-room, roof garden, swimming pool, etc., and considers them a psychological mistake. The moral motive is to compensate for the hardships of nursing, but these no longer exist (sic!). "It is probably a sentimentality which has no longer any *raison d'être* which induces so many rich Americans to devote their millions to a palace in which the poor drudges of nurses can, in their scanty leisure, be coddled and . . . spoiled. What must be the feelings of such a girl who, full of ideals, intends to devote herself to her task, when she sees that the not at all excessive de-

mands that are made on her are rewarded with a luxury such as she has probably never known before? And how must she feel, after leaving the hospital again, in a society which is not inclined to regard her continually as a spoiled child and to act accordingly?" This viewpoint is certainly not in harmony with the views accepted to-day on this continent and in England. If we are to expect our finest young women to enter the nursing profession, we must give them housing and recreational facilities comparable to some extent at least with that provided in other educational institutions. The viewpoint of the author may be influenced by the observation that "The social position of the nurse in America is—in harmony with her 'scientific' status—a higher one than in Europe".

The luxurious accommodation and complete equipment of our better hospitals call forth an interesting criticism. "I am inclined to think that there should be a certain relation between the equipment of the hospitals and the standard of life—and especially the housing conditions of the population. . . . It is very problematical whether it is a good thing to take anyone temporarily out of his slum-dwelling into such absolutely different surroundings—and whether it would not be more reasonable to apply part of the money now being spent on luxuries for the hospitals to the improvement of the housing of people. For me this has, in fact, ceased to be a question; I am convinced that in this way the money would be better spent . . . in the interests of public health."

"A favourite boast of American hospital-builders is that their institutes look, or will look, like a first-class hotel. And I have seen several in which, in point of fact, not only hotel upholstery, but also hotel habits had been introduced, especially in the kitchen and the dining-room. . . . All this seems to me psychologically wrong. I can quite believe that this sort of thing is just what part of the public like, but in hospitals it is not the judgment of the public which should count, but that of the doctor. A hospital is not a place to go to for pleasure, or to be surrounded by every convenience that technical skill has succeeded in producing with the object of making life pleasant, but where it is hoped to recover health in the shortest possible time. . . . The very thing that the hospital should try to do is to create an entirely different sphere from that in the patient's own home, which is often dominated by the idea of illness, whereas it should be led in the direction of the recovery of health. So that I, for my part, believe that the success of sanatoria depends much more on the discipline which is kept there than on the air inhaled or the wells which are available."

Dr. Mansholt does not anticipate any imitation of American construction and technical equipment on anything but a limited scale. Quoting the Austrian Chancellor Schober at the last Hague Conference, in discussing reparation payments:



"There are three reasons why my country cannot entertain these proposals; the first is that Austria cannot pay any more—after which the two others do not matter." Europe cannot in the present circumstances dream of building hospital-palaces of which we saw many in America, and, this being so, there is no use in advocating such a thing.

### RADIO INTERFERENCE BY PHYSICAL THERAPY APPARATUS

The presence of a doctor on the corner has usually been considered an asset to a residential district, but the old order seems to be changing, now that every home centres about its radio. More than one source of local interference has been traced to the electro-therapy equipment of the nearby doctor and the proximity of his office is not an unmixed blessing. Indeed, one decision at least has been made restraining a physician from using such radio-interfering equipment as a diathermy machine during certain hours. Moreover, the increasing installation of radio headsets in hospitals and the greater use of physical therapy in such institutions has created considerable hospital interest in this subject, for the reception of many fine programs has been ruined by the staccato interference of a high frequency machine.

This interference is considerable and may disturb radio receivers miles from the source. The direct radiation is considerable and sets up a surge on the power wires supplying the apparatus and also on any wires within a few yards of the apparatus, thus rendering it difficult to eliminate the interference in many cases. Although a surge trap may be installed, thus preventing the surge being conducted to the supply wires, the direct radiation to nearby circuits may cause the surge to be carried on the distribution system.

Our Department of Hospital Service is in receipt of a very interesting report on high frequency apparatus made by the Radio Branch of the Department of Marine in which several valuable suggestions are made. In the simplest cases, where it appears that most of the interference reaches the distribution system by the electrical supply to the apparatus, a surge trap (as illustrated and described in the report) should be connected as near as possible to the source of interference, or in some cases, at the main supply to the building, to prevent the surge from reaching the distribution system. However, to eliminate direct radiation to the distribution system, it is necessary to make a careful study of all of the paths by which the interference may reach the distribution system. It is suggested that a simple test to determine the location of concealed wiring in the walls and ceiling may be made with a portable radio receiver having a loop antenna. If a known source of interference, such as a high frequency apparatus, be connected to a service outlet in a different part of the house or the garage, a surge can be set up throughout the

house. If then the receiver be moved about the room changing the direction of the receiver, the interference will be heard the loudest when the loop of the receiver parallels nearby wiring. Thus it can be arranged that the apparatus to be installed be set up where it will give the least radiation to the distribution system.

It has been found that the interference is very much greater in the case of "open" wiring (although concealed) than from wiring in conduit, largely because of this factor of radiation. There is very little radio interference from the recently built hospitals and Medical Arts or other professional office buildings, in which conduit wiring is customary and in which the transformers supplying the power are either underground or in the building. In a recent communication the Director of Radio Service informs us that, in some cities, the broadcast listeners have noticed a decided improvement, due to the fact that many practitioners have moved their apparatus from their residences to the professional office buildings.

Where it is impossible to install surge traps in all the circuits which pick up the interference, the only solution is to install an electrostatic shield between the high frequency apparatus and the wiring. This may be done by building a shield around the room containing the high frequency apparatus or by installing all nearby wiring in conduits placed outside of the field of influence. In order to effectively shield any interfering electrical apparatus, the shield must be absolutely complete, as small gaps  $\frac{1}{8}$  inch wide and a foot or two in length may reduce very materially the effectiveness of the shielding. Sheet metal, copper or bronze screening may be used, but iron fly screen is not suitable, as both corrosion and paint introduce too much resistance at the wire interstices. All parts of the screen should be thoroughly bonded and grounded, and, at the doors and windows or other openings, the screen should overlap an inch or two to ensure no small gaps in the shields.

A similar principle is used in the construction of an insulated cabinet sufficiently large to contain the apparatus, the operator and the patient. This is sometimes utilized for the operation of electrocardiographic apparatus, where the proximity of elevators, street cars and other sources of interference has distorted the tracing. However, in this latter instance, the object has been to prevent penetration by outside stimuli, rather than to prevent the escape of errant currents from within.

The interference most annoying to radio listeners seems to have a general peak effect on approximately 1,075 kilocycles frequency. In a recent study of this matter, the suggestion was made by the senior radio inspector in British Columbia that the radio frequency of certain electromedical apparatus might be raised to approximately 1,675 kilocycles, thus eliminating the interference from the radio broadcast band which covers the frequency from 1,500 to 550

kilocycles. This could be done without altering the spark frequency. However, certain manufacturers have expressed the opinion that this change might have detrimental effects on patients under treatment and further study would be necessary on this point.

It has been found particularly difficult to control this interference arising from the type of electrical apparatus used in private homes. In cases of interference brought to the attention of the departmental inspectors the operators have been requested to use the interfering apparatus as little as possible during the popular broadcast hours.

## Provincial Association Notes

### THE PROVINCE OF QUEBEC MEDICAL ASSOCIATION

The Province of Quebec Medical Association held one of the most notable of its annual reunions this year at Quebec on September 10th. The reunion assumed the character of a Clinical Day, and the clinics given by the staffs of the Hôpital Saint-Sacrement and Hôtel-Dieu on various subjects were attended by some sixty to seventy-five physicians who took much interest in the proceedings and contributed to many lively discussions. Immediately after the clinics luncheon was served at the Chateau Frontenac at which more than one hundred members were present.

At the close of the luncheon the annual meeting of the Association was held, when the reports of the General Secretary and the Treasurer were unanimously adopted, as well as the reports of the various committees—those on Post-graduate Extension Courses, the British Empire Cancer Campaign, Industrial Medicine, Drug Addiction, and Public Health.

The election of officers for 1932 resulted as follows: *President*, J. R. Belisle, Hull; other members: G. Archambault, Montreal; A. T. Bazin, Montreal; C. C. Birchard, Montreal; B. G. Bourgeois, Montreal; A. Brassard, Valleyfield; C. N. DeBlois, Three Rivers; P. C. Dagneau, Quebec; O. Demers, Farnham; L. F. Dubé, Notre-Dame-du-Lac; L. L. Charpentier, Drummondville; L. Gérin-Lajoie, Montreal; J. Guerard, Quebec; J. A. McCabe, Sherbrooke; J. R. Pépin, Montreal; H. S. Shaw, Montreal; J. Stevenson, Quebec; A. Thibault, St. Eustache; E. Tremblay, Chicoutimi; E. Trottier, Montreal; A. Viger, St. Hyacinthe.

The Society of Industrial Medicine, whose regulations call for their annual meeting at the same time as that of the Medical Association of the Province of Quebec, with the cooperation of the Committee on Post-graduate Courses, had invited Dr. W. S. Barnhart, the Superintendent

of the Lumbermen's Safety Association of the Province of Ontario, to be present, and he addressed the assembly on "The functioning of the law on industrial accidents in the Province of Ontario." The new Law on Industrial Accidents of our Province, being copied from that of the Province of Ontario, which has been in operation for thirteen years, was explained in a clear and precise manner by one who had authority to speak.

At 3.30 p.m. Professor E. Sergent, of the Faculty of Medicine of Paris, lectured at Laval University on "Pulmonary cancers," and he was followed by Professor Edward Archibald, of McGill, who expounded the technique, the advantages of and the indications for phrenicectomy in certain pulmonary affections. These two lectures were of extraordinary interest to those present and concluded in a masterly way the scientific part of the Clinical Day which had been so well begun.

At 7.30 p.m. the annual dinner was enjoyed by about one hundred ladies and gentlemen. Doctor Dagneau, the President, was at the head, and grouped on each side of him, right and left, were the following: Dr. W. S. Barnhart, Professor Sergent, Madame Dagneau, Madame Harwood, Madame Rousseau, Professor Archibald, Professor Harwood, Madame Sergent, Dr. Rousseau, Dean of the Faculty of Medicine, Laval, Doctor Guerard, President of the Quebec Medical Society, Dr. P. Z. Rhéaume, Past-President of the Association of French-speaking Physicians of North America, Doctor Grondin, Director of the Canadian students at Paris, and Madame Grondin, Dr. A. H. Desloges, Dr. E. Trottier, and Dr. L. Gérin-Lajoie.

After the toast to the King, Doctor Dagneau gave an address on the history and objects of the Association, and detailed its numerous activities, in particular the work of the Committee on Post-graduate Studies, which from 1925 to 1931 had sent 228 lecturers to 128 different centres, who had given 392 talks before 3,028 physicians.

Professor Sergent was then called upon to speak and he dealt with the "Conception of modern medicine, as compared with that of former times."

The addresses, the banquet, and the scientific program made the Clinical Day an unprecedented success, and the sincere thanks of the members of the Association are due the members of the local committee and, in particular, to the President, Doctor Dagneau.

The newly elected Executive proceeded to select their officers, as follows: *President*, Dr. J. R. Belisle, Hull; *First Vice-president*, Dr. C. N. DeBlois, Three Rivers; *Second Vice-president*, Dr. H. S. Shaw, Outremont; *Third Vice-president*, Dr. A. Brassard, Valleyfield; *General Secretary*, Dr. L. Gérin-Lajoie, Montreal; *Treas-*



urer, Dr. E. Trottier, Montreal; *Members of the Executive*, Drs. A. T. Bazin, Montreal; B. G. Bourgeois, Montreal; J. R. Pépin, Montreal.

#### MEETING OF COUNCIL ON SEPTEMBER 9TH

The General Secretary reported as follows. The year 1930 proved to be very active in the history of the Secretariat of the Association. Not less than 15,000 letters were sent out from the office to the members of the Association, both English and French.

#### 1. ANNUAL MEETING, 1930

The Annual Meeting of 1930 was held concurrently with the meeting of l'Association des Médecins de Langue Française de l'Amérique du Nord, and was somewhat overshadowed by that of the larger body. The few members present at the meeting of September 19th, if they were not particularly active in discussion, at least were able to note and appreciate the enormous amount of work devolving every year upon the Secretariat.

#### 2. ANNUAL MEETING, 1931

At the end of the 1930 Meeting the President, Doctor Bourgeois, and the President-elect, Doctor Dagneau, worked hand in hand for the success of the Meeting of 1931.

#### 3. PERIODIC HEALTH EXAMINATIONS

With the cooperation of a certain number of the Life Insurance Companies, the Canadian Medical Association has put itself at the head of a movement to popularize periodic health examinations among the Canadian people. With the collaboration of the different provincial associations we have shared this work by translating and sending out a certain number of circulars to physicians.

#### 4. THE CANCER PROBLEM

At the last annual meeting Dr. A. T. Bazin made known to us the desire of the British Empire Campaign for the creation of a Provincial Committee. This Committee, of which Doctor Bazin was elected president, is in process of formation, and reports progress.

#### 5. THE ROYAL COLLEGE OF PHYSICIANS AND SURGEONS OF CANADA

The Royal College of Physicians and Surgeons of Canada has become a reality, and, thanks to the active part taken by our Association, we have succeeded in ensuring that the College will be bilingual. The following is taken from the charter, chapter 2.

"Those persons holding at the date of the coming into force of this Act appointments as professors in medicine, surgery, gynaecology or obstetrics in a Canadian University, together with the persons from time to time selected and admitted as, or otherwise being, Fellows of the College pursuant to this Act, upon their consent so to Act, are hereby constituted a corporation under the name of 'The Royal College of Physicians and Surgeons

of Canada,'" and when the French language is used to designate that corporation the equivalent name shall be "Le Collège Royal des Médecins et Chirurgiens du Canada."

We continue to urge the necessity for every physician or surgeon to become a member of this college which promises to be as well known and of as high a reputation as the Royal Colleges of England.

#### 6. A VISIT TO THE THERMAL STATIONS OF FRANCE

Count d'Ornano has approached us with the request that we organize a trip to the climatic and thermal stations of France. The trip is available to the whole medical profession of Canada and we have succeeded in obtaining the names of ten physicians who can speak of the great benefits which a visit to these stations can offer.

#### 7. STUDY COMMITTEE ON NURSING

The Canadian Nurses' Association, in collaboration with the Canadian Medical Association, has formed a Study Committee to ascertain the true position of nurses and nursing in Canada. Doctor Weir, of British Columbia, has been entrusted with this study, and has travelled all over Canada, holding enquiries in various places. He has approached us in order to gain the support of the physicians and surgeons of our hospitals, which conduct courses on nursing. We have had here, also, to make many translations for this committee.

#### 8. THE VICTORIAN ORDER OF NURSES

The Victorian Order of Nurses has requested the representation of our Association in their Order, analogous to that possessed by the other provincial associations at the present time. Dr. J. R. Belisle, of Hull, was named as our representative.

#### 9. THE MATERNAL WELFARE COMMITTEE

This national committee has applied to us on many occasions for information. We believe that the Province of Quebec ought to have a Committee on Maternal Welfare and that it ought to be constituted immediately.

#### 10. THE ONTARIO MEDICAL ASSOCIATION

Dr. A. T. Bazin was asked to represent officially the Province of Quebec Medical Association at the Annual Meeting of the Ontario Medical Association, and we are happy to say that he was warmly received.

#### 11. THE BRITISH MEDICAL ASSOCIATION

In connection with the visit of the British delegates to the Annual Meeting of the British Medical Association at Winnipeg, the Medical Association of the Province of Quebec, together with the local medical societies, entertained the delegates, and we have reason to know that the warm receptions given to the visitors were appreciated by our English colleagues.

## 12. THE CANADIAN MEDICAL ASSOCIATION JOURNAL

The Medical Association of the Province of Quebec has a distinguished representative on the Central Editorial Board of the *Canadian Medical Association Journal* in the person of Dr. L. C. Simard, of the University of Montreal.

## 13. A.P.I.M.

The Association Professionnelle Internationale des Médecins is perhaps unknown to the majority of Canadian physicians, but it is an international organization of which your Secretary is the national correspondent for Canada. The Canadian Medical Association is affiliated with the A.P.I.M., and we have had to reply during 1930 to a number of enquiries of a professional character and world-wide interest.

## 14. CONCLUSION

The Medical Association of the Province of Quebec has continued to advance in the year 1930 as it has done in the preceding years, and more and more we are being approached for information of a general or local character, and to furnish representatives on national committees.

The whole respectfully submitted.

LÉON GÉRIN-LAJOIE,  
General Secretary.

Those interested will be able to read the full report of the proceedings of Council in *l'Union Médicale du Canada for October*. One or two of the more important features are touched on here.

The report of the Committee on Post-graduate Instruction was read by the General Secretary and unanimously adopted. The reading of this report elicited some discussion, and the General Secretary emphasized the necessity of looking to the future when our generous donors would discontinue their gift of \$5,000. There has been so far no question of the abolition of this annual subvention on the part of the Sun Life Assurance Company, but some day, probably, the enterprise will have to be self-supporting, and a discussion arose as to the best means to ensure the continuation of the existence of the Committee on Post-graduate Instruction. This year the attendance at the conferences has been greater than ever before, and everything points to the increasing success of meetings of this kind. Doctor Brassard, of Valleyfield, emphasized the great value of these meetings in bringing together the physicians, and, consequently, strengthening their esteem for one another. He added that in the city of Valleyfield it was customary to assign two doctors for duty on Sunday and the week-end, so that the rest can rest, hunt, or fish. This is the more easy now that the education of the people is completed

on this question and they understand that the physician has the right to rest; indeed, it is his duty.

In the absence of Doctor Ward, the secretary of the Society of Industrial Medicine, the General Secretary read a list of the meetings that had been held last year from January to October, four in all.

A letter was also read from the President, Dr. Eugène St-Jacques, on the subject of the affiliation of the Society of Industrial Medicine of the Province of Quebec as a Section of the Province of Quebec Medical Association.

## THE MANITOBA MEDICAL ASSOCIATION

The annual meeting of the Manitoba Medical Association was held in the Prince Edward Hotel, Brandon, on September 8th, 9th and 10th. The weather was perfect and the good roads attracted many to Brandon which is centrally located. Nearly 100 registered.

Dr. H. O. McDiarmid of Brandon, the President, aided by a strong local committee, had prepared an attractive program both of scientific papers and of entertainment. The meeting was favoured with the presence of Dr. A. S. Monro, Vancouver, President of the Canadian Medical Association, Dr. A. Primrose, Toronto, President-elect, Dr. T. C. Routley, General-Secretary, Dr. G. S. Cameron, Peterborough, and Drs. G. F. Strong, F. C. Covernton, and T. H. Lennie, of Vancouver, who contributed to the program. The following papers were read, many of which were discussed at length.

Dr. Jas. McKenty, Winnipeg, "Acute appendicitis"; Dr. G. F. Strong, Vancouver, "Cardiac irregularities"; Dr. J. D. Adamson and Dr. Hartley Smith, Winnipeg, "The blood in pregnancy"; Dr. Lennox Bell, Winnipeg, "The renal complications of essential hypertension"; Dr. F. C. Covernton, Vancouver, "Problems of the primipara"; Dr. A. Primrose, Toronto, "Some observations on malignant disease"; Dr. T. H. Lennie, Vancouver, "Management of toxic goitre"; Dr. H. S. Sharpe and Dr. W. A. Bigelow, Brandon, "Value of the O. T. test in diagnosis of tuberculosis"; Dr. Noel Rawson, Melita, "The story of the cerebellum."

A clinical session was held at the Brandon General Hospital at which operations were carried out under spinal anaesthesia. Dr. Cromarty and Dr. Carter, Brandon, showed several cases of apparently inoperable malignancy after treatment.

A symposium on mental conditions was conducted at the Brandon Mental Hospital. Dr. A. T. Mathers, Winnipeg, spoke on "Some medical and legal aspects of mental disease"; Dr. G. A. Little, Brandon, on a "Study of five years' operation of the reception unit at Brandon



Mental Hospital; Dr. D. Ewen Cameron, Brandon, on the "Practical classification of mental disorders"; Dr. Stuart Schultz, Brandon, on "Types of disease treated during a five year period at the Brandon Mental Hospital, giving cardinal symptoms and disposal of cases."

### THE PRINCE EDWARD ISLAND MEDICAL SOCIETY

The annual meeting of the Prince Edward Island Medical Society was held in Charlottetown on July 10th, the President, Dr. J. E. Fleming, in the chair.

The visiting doctors were Drs. George Young, W. B. Hendry and T. C. Routley of Toronto, and Dr. Wodehouse of Ottawa.

The morning session was taken up with society business. The officers elected for the ensuing year were as follows: *President*, Dr. J. A. Johnston; *Vice-President*, (Prince) Dr. I. W. Jardine; (Queens) J. T. Collins; (Kings) L. Brehaut; *Treasurer*, Dr. I. J. Yeo; *Secretary*, Dr. J. W. McKenzie; *Executive*, Drs. W. P. McBride, R. Murchison, and R. J. McDonald; *Auditors*, Drs. G. L. Smith and E. E. Sinclair; *Editorial Board*, Drs. J. A. McPhee and R. F. Seaman; *Members, Canadian Medical Association Council*, Drs. J. F. McNeill; Preston McIntyre; F. W. Tidmarsh.

The following subjects were discussed and acted upon by the Society:

1. ANNUAL MEETING DATE.—The executive was authorized to change the annual meeting date of the Society to the second Friday in July, for the purpose of running consecutively with annual society meetings of Nova Scotia and New Brunswick.

2. CANCER CONTROL.—Dr. Yeo addressed the Society *re* the incidence of cancer, quoting statistics to prove that its death rate equals and at times exceeds tuberculosis. He gave a summary of the measures taken by the various provinces to meet this situation and urged that Prince Edward Island do something. The Society commissioned the Public Health Committee to investigate ways and means of attacking this problem.

3. VACCINATION AND DIPHTHERIA IMMUNIZATION.—Dr. P. A. Creelman's report *re* the excellent work which has been done by his department in vaccinating and immunizing school children was much appreciated. His request for Prince Edward Island practitioners' support in his present campaign *re* immunization of children of pre-school age was passed unanimously.

4. POST-GRADUATE LECTURES.—The Society wished to place on record its continued apprecia-

tion of the Post-graduate Lectures. The secretary was requested to express its thanks to the Canadian Medical Association and Sun Life Company.

Dr. T. C. Routley addressed the meeting on Canadian Medical Association affairs. He referred to the very successful annual meeting recently held in Vancouver and urged as many as possible to take advantage of the exceptional opportunity offered by the British Meeting to be held in London next year. He also suggested that the local society endeavour to send two Council representatives to the Canadian meeting yearly. Dr. Routley further discussed briefly the present rapidly growing tendency towards State Medicine, particularly in western Canada and issued a warning note to the effect that this problem will have to be met effectively by the profession all over Canada in the near future. He gave statistics concerning a survey of the cost of medical education, physician's fees, etc., in Ontario, proving conclusively that a Canadian doctor's yearly stipend is far from being excessive.

Beginning the afternoon session the President, Dr. Fleming, gave an interesting summary of the many advances in medical science during his thirty years' practice.

Dr. W. H. Hendry gave an exhaustive and highly instructive address on "Ante- and post-natal care in obstetrics". He touched upon the recent stimulating advances in the physiology of the genital organs, ovary, pituitary, etc., and gave a description of the Ascheim-Zondek test for early pregnancy. He was of the opinion that pregnancy should be treated as a disease of nine months' duration and that effective ante-natal care and early recognition of the numerous complications of pregnancy are the best means known at present time to lower maternal mortality. He discussed in detail the complications of pregnancy giving many useful points in diagnosis and treatment.

Dr. Geo. Young followed with a valuable contribution on "The mental aspects of disease". He emphasized the necessity of physicians taking the mental reaction to disease more into consideration when working out their plan of treatment, stating that no organ of the body is free from the influence of the mind which may cause not only functional but even organic disease. The persistent search for first causes, conscious and subconscious, together with the power of suggestion employed by the physician who has the complete confidence of his patient are the main requisites for successful treatment.

The thanks of the Society were extended to Drs. Young and Hendry.

J. W. MCKENZIE

## University Notes

### Laval University

Dr. P. C. Dagneau, president of the College of Physicians of the Province of Quebec, has been appointed to succeed the late Dr. Arthur Simard on the staff of Laval University.

Dr. Dagneau will give courses in external pathology and surgical clinics to the students of the medical faculty. Dr. Paul Garneau will take over Dr. Dagneau's anatomy courses for first and second year classes.

### Manitoba University

Alvin Trotter Mathers, M.D., C.M., Provincial Psychiatrist since 1918, has been chosen as Dean of the Faculty of Medicine in the University of Manitoba to succeed the late Dr. S. W. Prowse. Dr. Mathers, who is a nephew of the late T. G. Mathers, Chief Justice of Manitoba, graduated from Manitoba University in 1913 after a brilliant college course during which he won the Lieutenant-Governor's Bronze Medal, the Boyle Scholarship, the Chown Prize and the University Gold Medal. He has had post-graduate experience on the continent and in the United States. He has been president of the Medical Students' Association and president of the Winnipeg Medical Society.

The choice of the new Dean is regarded in medical circles in Manitoba as a very happy one.

The corner stone of the new Arts Building of the University of Manitoba, on the Agricultural College site, Fort Garry, was laid on Sept. 26th, by Archbishop Matheson, Chancellor of the University, with appropriate ceremonies before a distinguished gathering. Premier John Bracken gave an address.

Work has been started on the Science Building of the University on a location close to the Arts Building.

Owing to the Dominion Government having approved the work as part of the unemployment relief scheme the Board of Governors at the University have decided to proceed with the erection of the Science Building on the Agricultural College site. Plans have been prepared by Professor Stoughton and Gilbert Parfitt. The building will cost approximately \$650,000.

### McGill University

At the 135th annual Commencement of Union College, Schenectady, New York, held on June 15th, Sir Arthur Currie, as this year's Honorary Chancellor of the College, was awarded the degree

of LL.D. Dr. Frank P. Day, President of the College, who served under Sir Arthur in the Canadian Corps as Commanding Officer of the 25th Battalion, conferred the degree.

Long-term and short-term grants for medical research, awarded by the trustees of the Banting Research Foundation in July, included a number to workers at McGill, among the former being: Miss A. M. Alley, M.A., and among the latter: Miss Ruth P. Dow, B.A., F. L. Horsfall, B.A., G. T. Evans, B.A., and Miss E. Rhoda Grant, M.A.

Dr. Hoerst Oertel, Stratheona Professor of Pathology, will represent McGill at the first meeting of the International Society for Geographical Pathology, to be held in Geneva, Switzerland, in October. The topic chosen for discussion on this occasion is cirrhosis of the liver, a disease regarding which there is much to be learned, and an exchange of views and opinions is, therefore, most desirable.

### University of Toronto

Sir Charles S. Sherrington, of Oxford, has been awarded the Charles Mickle Fellowship by the University of Toronto. The Fellowship is awarded annually to that member of the medical profession who has done most during the preceding ten years to advance practical knowledge of medical art or science.

Sir Charles Sherrington is noted for research work in connection with the brain and nervous system. He is Waynfleet professor of physiology at Oxford and is a past president of the Royal Society.

The Fellowship was donated by the late Dr. W. J. Mickle and is the annual income from an endowment of \$25,000.

## Special Correspondence

### The Edinburgh Letter

(From our own correspondent)

On the occasion of the 250th Anniversary of the Royal College of Physicians, which is to be celebrated next December, it has decided to confer the Honorary Fellowship of the College on: Sir David Bruce, K.C.B.; Lord Dawson of Penn, G.C.V.O.; Sir Archibald Edward Garrod, K.C.M.G.; Sir William Hale-White, K.B.E.; Robert Hutchison, M.D.; Sir Thomas Lewis, C.B.E.; Sir Donald MacAlister, of Tarbert, Bart., K.C.B.; Sir Edward Sharpey-Schafer, F.R.S.; Sir Charles Scott Sherrington, O.M.; Emile Charles Achard, Paris; Frederick Grant Banting, M.D., Toronto; A. A. Hijmans van



den Bergh, Utrecht; Knud Faber, M.D., Copenhagen; George Richards Minot, M.D., Boston; Friedrich von Müller, M.D., Munich; Hermann Sahli, Berne; William Sydney Thayer, M.D., Baltimore; Julius Wagner-Jauregg, M.D., Vienna.

Sir Robert Philip, LL.D., Curator of the Laboratory of the Royal College of Physicians, has issued his report for 1930. During the year eighteen workers have been engaged in research, and the results of their investigations have appeared in various papers and articles which have been published from the Laboratory. Eight of the workers are Fellows or Members of the Royal College of Physicians or Surgeons, the remainder are investigators who have been accorded the privilege of working in the Laboratory. Twenty-three investigations have been conducted, and these relate to pathological, bacteriological and mathematical problems. The Superintendent and Dr. Kermack have continued their study of the mathematical theory of epidemics. Their attention has been particularly directed to the study of populations in which a disease is endemic, and they have attempted to determine the conditions under which periodic epidemics may break out. Populations have been considered in which an influx of fresh individuals is brought about either by birth or by emigration at a constant rate, and it appears that under certain conditions periodic or quasi-periodic fluctuations may be superimposed upon the endemic level of the disease. The results have a bearing upon the interpretation of the observations of Greenwood and Topley, who encountered similar fluctuations in experimental epidemics in mice. Figures showing the distribution of cases of kala-azar, in households of varying numbers of inhabitants, have been submitted from India for statistical analysis. This has been undertaken by the Superintendent and Dr. W. O. Kermack. From these it appears that the chance that a household will become infected increases with the number of its inhabitants, and that the chance that an individual who resides in a larger household will contract infection is less than that of an individual in a smaller one.

The number of reports issued from the laboratory continues to increase. During the year 14,936 reports were prepared. Of these, 6,313 were sent to Fellows of the Royal College of Physicians, and 5,030 to Fellows of the Royal College of Surgeons. Of the total number 3,235 involved histological examination, 9,071 bacteriological, 2,630 chemical. The excess of expenditure over ordinary income has been met, as in former years, by a grant made by the Carnegie Trustees in the interests of research.

During the summer, action was taken by panel doctors in Edinburgh against what were considered to be increasing and unreasonable

demands for clerical records on the part of the Scottish Department of Health. As a result a new body "The Edinburgh Medical Association, National Health Insurance" has been formed. The new association includes most of the doctors with large panels in the area. This action has been taken largely on the requisition that panel doctors should fill up certain forms. These forms relate to panel patients applying for admission into one of the hospitals, or for a special hospital examination. Panel doctors consider that the numerous details required by this form, and particularly the necessity of keeping clinical records of each patient, entail upon them an amount of clerical and statistical work which is incompatible with the medical requirements of the case, and which also may tend to impede the proper discharge of their ordinary duties in relation to other panel patients. The policy of the new body is to provide the panel practitioner with an association to whose meetings he can be called quickly, and at which he can have his business dispatched expeditiously. He also wants to formulate his ideas and press them on the British Medical Association. He finds himself beset with difficulties. He is responsible in his panel work to a Government Department, which by recent regulations he considers not in sympathy with his difficulties. He finds that his practice is being encroached upon by clinics and by the out-patient department of the hospitals. His panel practice is only part of his practice. He has his private patients to serve. He is on duty all the time; he has not time for many meetings, and feels that members of a Government Department with regular hours, fixed salaries, and ample leisure are ignorant of the conditions of life of the panel practitioner. In the new association in the Edinburgh district he can talk a language understood by his fellows, air his grievances, and seek to improve the medical service of his country. This association now has over a hundred members. Among its other activities it has prepared a scheme of group insurance which will do away with the need of charity. The scheme is without a medical examination. It is applicable to medical men at the critical age when a breakdown might lead to serious consequences for their families.

Dr. Charles M'Neil, F.R.C.P.E., Senior Physician in the Royal Hospital for Sick Children, has been appointed the first incumbent of the Edward Clark Chair of Child Life and Health. This Chair, the first on this subject in Edinburgh, has just been founded as a result of a grant from the trustees of the late Mr. Edward Clark, Edinburgh. Dr. M'Neil is a graduate of Edinburgh. He was for long associated with the late John Thomson in the study of disease in children and has contributed numerous

papers to the medical literature in his special subject, chiefly upon tuberculosis in childhood and upon pneumonia and its complications.

Mr. D. P. D. Wilkie, Professor of Surgery at Edinburgh University, has been appointed a member of the Therapeutic Trials Committee of the Medical Research Council. The object of the Committee is to advise and assist in arranging for properly controlled clinical tests of new products that seem likely to have value in the treatment of disease.

The following is copied from the *University of Edinburgh Journal*:—"In the obituary column of the *Times* of Saturday 31st January, 1931, there appeared the following notice:—

Jones—On. Jan. 27, 1931, at 2 Colosseum Terrace, Regent's Park, N.W.1, Henry Jones, for many years butler and later nurse to the late Lord Lister, aged 90 years.

To the end a devoted and faithful servant, Mr. Jones has survived his master for nineteen years. Those who were present at the conversation in the Wellcome Historical Medical Museum during the Lister Centenary Celebrations held in London in the spring of 1927 will recollect that he was one of the invited guests and was called upon to say a few words."

GEORGE GIBSON.

23 Cluny Terrace, Edinburgh.

### **The London Letter**

(From our own correspondent)

It is impossible to avoid mention of the "crisis" because everybody talks about it and the medical profession had the doubtful honour of being one of the classes singled out by the "May Committee" for a reduction in income. Among the other economies recommended to deal with the present financial situation was the decrease in the capitation allowance of nine shillings per annum for every insured patient to eight shillings, which would represent a saving to the Health Insurance Scheme of approximately £750,000.

If this were put forward as an invitation to the profession to make a temporary sacrifice as its contribution to help the nation then the response would be doubtless a willing one, but unfortunately the recommendation is not in this spirit at all, and it is coupled with the suggestion that the standard of remuneration of the medical profession is too high. It is, therefore, likely to be resisted, and so also is the dismissal of the proposed maternity scheme as too ambitious, despite the serious warning contained in the recent departmental committee's report on maternal mortality in this country. The doctor is constantly being faced with the disastrous effects produced in families

where economy in matters of health is practised, and he will be a difficult person to convince that it will pay the nation to save money at the expense of health. Indeed, so long as the better insurance companies have large surplus funds, no doubt invested in the fixed interest type of security, left untouched in all the May Committee's recommendations, the doctor is inclined to remind himself cynically that with all his great merits as a champion of economy Sir George May has also his position as head of one of the best-known insurance companies in the country to remember.

The second interim report of the Commission on Nursing set up by *The Lancet* follows the previous report at an interval of about six months, and again serves to marshal a great number of facts about a nurse's life in this country. From 686 hospitals answers were obtained to the questionnaire submitted, and from these it may be deduced that a typical nurse working at a hospital approved as a training school will have the following sort of routine. She must be 18 or 19 years old on admission and will need to have had a moderate level of secondary education. She will usually receive her training free, must work for three or four years, attending lectures concurrently with her ward duties, half of these in her off-duty time. Her average working week will be about 60 hours, beginning about seven in the morning and going on until eight to eight-thirty at night. In addition to time off for meals she will have from two to three hours free daily, a half or whole day off per week and annually two or three weeks' holiday. Usually, she will have a separate bedroom and a common room at her disposal, but she must be in at a set hour and will not be permitted to have a latch-key nor to introduce men guests. Her annual salary will begin at about £20 and rise to £40 in her final year. This is a hard program for a young woman to face, but undoubtedly she would face it willingly if the prospects at the end of it all were better than they are. In the final report the Commission will suggest remedies for the present shortage and discontent in the nursing world. Perhaps the report will see fit to lay down some sort of rules as to what a nurse is really expected to know and do, for, judging by a recent correspondence in *The Times*, started by a comparison between American and British nurses, there is a school for thought among the public that looks upon the nurse as a sort of inferior doctor. Nothing could do more harm to this honourable profession than this sort of attitude and the multiplication of theoretical lectures on advanced medicine and surgery can do no good. Nor in these days is it reasonable to expect well-educated girls to devote a large part of their working-day to polishing brass



plates and washing dishes. An elimination of the domestic side of a nurse's work, as well as a sensible pruning of the theoretical knowledge required by the examining bodies, will go far towards remedying the present situation.

Cancer research continues to be about the most promising line of medical investigation at the present moment, and the annual report of the British Empire Cancer Campaign contains a vast amount of information on various aspects of this work. Perhaps the most fascinating is the progress of Dr. Thomas Lumsden's researches into the effect of immune sera. While treatment of human tumours by anti-cancer serum is not yet possible, the preliminary results of treating mouse cancer, both implanted and spontaneous, raise the hope that ultimate success may be achieved along this line. This is particularly satisfactory when read in conjunction with the account of the comparative failure of the "bomb" method of treating cancer with irradiation from large amounts of radium. The public has had its interests stirred by the reports from Holland of Dr. Bendien's serological test for cancer and Dr. Piney after his visit to the originator's laboratories came back enthusiastic for this work. Unfortunately, other investigators at the London Hospital have just reported that the test gives positive results in a variety of diseased conditions and that "the spectrophotometric method applied to Dr. Bendien's solutions has no value in the diagnosis of cancer." More time must elapse before the final decision is made, but meanwhile the blood serum is undoubtedly regarded in many quarters as holding the secret of the cancer problem.

ALAN MONCRIEFF

1 Queen Anne Street, London,  
September, 1931.

## Topics of Current Interest

### Poisoning from Paints

If a painter is suffering from symptoms suggesting an occupational poison it is a mistake to assume off-hand that he is suffering from lead poisoning, just as it is unwise to assume lead poisoning in a plant where so-called lead pencils are being made of graphite, a pure carbon.

A great change has taken place in the last few years, not only in the composition of paints but in the technique of painting, and many other poisons may be found in paint besides lead.

To a considerable extent in certain industries nitro-cellulose lacquers have replaced the

common linseed oil paints. The application of paints or lacquers by brushing has also given way largely to the use of the spray gun which necessitates adequate exhaust ventilation and in its absence makes poisoning by the ingredients of the coating mixture, including the thinner, extremely likely. The majority of lacquers are free from lead. They are made up largely of cellulose and gum resins thinned with volatile solvents such as petroleum naphtha, benzol, toluol, methyl, ethyl and butyl alcohol, ethyl and butyl acetate.

The acetates are relatively harmless, except for an irritating effect, in heavy concentration, on the eyes, nose and throat. Toluol, in the concentrations in which it occurs, is not harmful, but benzol is frequently substituted for it and benzol is the most toxic and insidious of all volatile solvents. There should be no difficulty in diagnosing benzol poisoning, however, because it produces a characteristic change in the blood,—a reduction in the white blood cells,—very constantly. Symptoms of weakness, dizziness, headache and loss of appetite accompany this change in the early stages. Later, there is a tendency to bleeding from the nose and gums. The "naphtha jag" associated with high concentrations of petroleum naphtha is familiar to many workmen. Naphtha is not a serious poison but, besides causing dizziness, can cause headaches, spots before the eyes and irritation of the eyes and throat. Methyl alcohol under conditions of bad ventilation may be responsible for headaches, nausea and eye disturbances which may be serious.—A. Ross Smith, M.D., in the *Industrial Hygiene Bull.*, N.Y., July, 1931.

### The Fatality of Scarlet Fever

A study of scarlet fever in England, confirms the general impression that for some fifty years past the fatality of the disease has been declining steadily. Here and there a higher mortality than expected is observed, but these few cases do not have a marked influence on the general trend.

Some of the reports are very striking—in one town, 210 cases with 1 death, in another an epidemic (number of cases not stated) with no deaths. In Liverpool, there has been a decline from 9.3 mortality per 100,000, in 1919, to 1.7 in 1929, though there were two years intervening in which the death-rate had no decline. From a number of other towns there are reported epidemics with a general mortality of slightly over 1 per cent.

The reports do not seem to give any safe ground for forecasting, but they demonstrate certainly that scarlet fever is now a much milder disease than it has been in the past.—*American Journal of Public Health.*

### The Waking Hour in Hospitals

The Minister of Health has issued a memorandum to all county and county borough councils in England and Wales, drawing attention to the report on patients' waking hours in London voluntary hospitals, published by King Edward's Hospital Fund for London, and suggesting that the councils will no doubt wish to consider the question of adopting the recommendations in the administration of their own hospitals. The principal recommendations in the report are that, unless there is some exceptional and adequate reason to the contrary, the most suitable hour for the waking of patients is 6 o'clock, and that, whatever the official hour may be, no patient should be washed before having either breakfast or early morning tea. At the annual meeting of the council of King Edward's Fund the Prince of Wales made the following reference to the report: "The subject has been talked about for years, and the difficulties are well known to all hospital people. A few hospitals have been making experiments. They have certainly brought the question to the front, as is shown by the fact that it was taken up last year, almost simultaneously and quite independently, by three different bodies, each in its own sphere—the British Hospitals Association, the London County Council, and the King's Fund; and the three reports all point more or less to the same conclusion."—*Brit. M. J.*, 1931, 2: 271.

### An Educational Experiment at the University of Chicago

The university has planned to undertake an experiment in education similar to what has been done in many European universities for hundreds of years, namely, the induction of scholastic freedom. Fixed, formal education, curricula, hours, lectures, all will be scrapped. Every student will be given opportunity to acquire education unhampered by rules and regulations, except those which require that he must obtain credit for performance, for work done, before the prescribed recognition can be given. In other words, he may graduate as soon as he is ready to do so; perhaps in one year, in two, three, four, or more years.

Degrees will be granted only to those who have received special recognition for unusual performance. After having completed prescribed courses in a given field, say arts, no matter how much time has been spent in doing so, whether much or little, the university will select from the student body those students on whom it thinks it worth while to spend more time and money. These students will continue their studies in special courses, with no time limitations, and will receive a degree on the satisfactory completion of the work.

In other words, performance is the *sine qua non* in this scheme. It is no longer a question of "hours", nor of attendance on lectures, nor set exercises of any kind. The student is expected to get an education, not mere knowledge which may escape his overloaded memory very soon after he has passed his examinations. The student is "on his own." The good student will make good. The poor student will eliminate himself.

The present non-professional graduate school will be replaced by five groups of studies, each with a dean. These are the social sciences, the physical sciences, the biological sciences, the humanities, and the college. The plan may, if successful, be extended into the professional schools later.

The experiment is announced as being an effort to answer the question whether the college is worth while and to place the burden of this largely on the individual.

In the biological sciences group are: botany; physical culture; zoology; anatomy; physiology; physiological chemistry; hygiene and bacteriology; pathology, a rather large slice of the present medical school curriculum. Richard Scammon is the dean of the group.—*Journal of the Ass. of Amer. Med. Colleges*, January, 1931.

### Health Insurance in Canada

Pictures of the ostrich show him as a bird possessing very few tail-feathers. This is probably due to his habit of burying his head in the sand, whenever danger threatens. He thus puts himself in a position where anyone who wishes to do so, can remove the tail-feathers quickly and easily. There is a lesson in this parable, for the medical profession. As a profession, we imitate the ostrich to a large degree. We refuse to face the fact that the social order is changing, and that as a result of this change, new conditions are arising, and have arisen, which gravely threaten our economic security. Since we do not show any evidence of resentment, gradually but steadily we are being mulcted of rights and privileges, which we seem to have taken for granted would always be ours. Every medical man knows that small but persistent and long-continued hæmorrhage is more damaging than the occasional loss of a large amount of blood, and we should be wiser and better-advised if we faced the situation squarely, made the necessary and proper adjustments, and put ourselves in line with the new state of things.

There are signs, however, of awakening. In Great Britain, an immense amount of valuable and far-reaching work is being done by the British Medical Association, as anyone who follows the supplements of the *British Medical Journal* will realize. The profession in the Old Land is particularly well-organized and well-



led. Their national association has been fortunate in its General Secretary, Dr. Arthur Cox, who for many years has been a tower of strength—and is soon, we believe, to retire. It will be difficult to fill his place. We, in Canada, are fortunate too, in our national association. It is very much alive, and ably led. Dr. T. C. Routley, the General Secretary, is one of the dynamic men of our time. It is a pleasure to have dealings with him, and one cannot but recognize and acknowledge his energy and alertness.

At the annual meeting here this year an important resolution was passed. Steps are to be taken to organize a Study Group all over Canada, with headquarters at the Canadian Medical Association offices, which will go into the whole question of health insurance, and be prepared to submit constructive proposals. This is as it should be. While British Columbia is at present farthest ahead in the political management of this question, it is only a matter of time before the rest of Canada will be fully interested, and our relation to it should be on national lines rather than merely provincial ones. We are glad to see that this step has been taken and hope that it will be productive of result. One of the first problems, we feel, is in the matter of "charity practice" so-called, which has become such a burden, and an unfair one at that, on the medical profession. Space will not permit development of this theme, but it is one that is worthy of our closest and most careful study. It is in this connection more than any other, that the medical profession has allowed itself to be manœuvred into a position of grave danger, and one that is very unfair, and the time has come for us to protect ourselves against the rising tide of encroachment in this regard.—Editorial, *Bull. Vancouver Med. Ass.*, 1931, 7: 261.

of the bacteria on the thyroid cells. This fully accounts for the loss of colloid and of iodine in the gland. If caused by chemical action, the by-products of protein may offer an explanation, since so many of them are toxic, and because many of the bacterial toxins themselves are proteins, which are better classified as nucleoproteins. Most of the products of protein catabolism may be produced in the body by the enzymatic action of the secretions of the various organs on the proteins of bacteria or of the body tissues.

The authors chose the purin bases, which are constituents of nucleoproteins, for the purpose of experimental study. They seemed to offer the greatest possibility of toxicity to the thyroid gland, since a close relationship exists between the thyroid gland and the katabolism of proteins. Following along these lines, histamine, guanine, and xanthine were used in dogs. With histamine, desquamation, loss of colloid, and beginning hyperplasia were produced. There were no results from guanine, but xanthine produced the same results as histamine.

Caffeine, theophylline and theobromine, which are methylated derivatives, were then used. Given to the point of toxicity, each produced desquamation, loss of colloid and beginning hyperplasia of the thyroid gland in dogs in almost every instance. In some microscopical sections the hyperplasia could scarcely be differentiated from that seen in exophthalmic goitre in human beings. Since these methylated purins (including caffeine) produce hyperplastic changes in the thyroid gland, possibly the rise in the metabolic rate is due to the stimulating action of the caffeine on the thyroid gland. Cole and his associates studied the effects of ninety chemical compounds on the thyroid glands of dogs, and the greatest effects were obtained with caffeine, theophylline and theobromine.

G. E. LEARMONTH

## Abstracts from Current Literature

### MEDICINE

**The Production of Hyperplasia of the Thyroid Gland by Chemical Means.** Cole, W. H., Womack, N. A. and Ellett, W. H., *Arch. Surg.*, 1931, 22: 925.

In several earlier publications Cole *et al.* called attention to the hyperplasia, desquamation and loss of colloid that occur in the thyroid gland during the course of systemic infections and toxæmias. These changes are probably due to excessive functioning of the thyroid cells as a result of chemical or of physiological stimulation, and they are secondary, since they are brought about without any direct local action

**The Electrocardiographic Changes in Myocardial Ischæmia.** Feil, H. S., Katz L. H., Moore, R. A. and Scott, R. W., *Am. Heart J.*, 1931, 6: 522.

The authors present a convincing piece of work based on their experiments on 26 dogs, in whom successful coronary ligations were performed. The artery ligated was in all instances the left anterior descending branch of the coronary, care being taken to exclude the vein from the ligature. In addition to this, the inferior vena cava was ligated in most of the experiments. The electrocardiographic changes thus produced were observed at brief intervals following the ligations. Finally, in order to ascertain whether the coronaries had actually been tied off, the hearts were removed,

and injected with a solution of barium sulphate (Gross' method) and roentgenograms made. Two very good plates of successfully ligatured coronaries are reproduced in the text. Some interesting observations are reported as a result of the above investigations.

Ligature of the coronary artery, if unaccompanied by an arrhythmia or by ligature of the inferior vena cava, will not bring about R-T deflections. Feil and his co-workers explain these results by the blood pressure readings obtained during the various experiments. Thus, the blood pressure was not lowered significantly by coronary ligature *per se*, but was definitely reduced with an arrhythmia or following ligature of the inferior vena cava. The logical inference is that cardiac ischæmia, which is responsible for the coronary changes in the R-T deflection, requires a blood-pressure reducing factor in addition to occlusion of the coronary artery. The authors arrive at another conclusion which throws some doubt upon previously reported observations. They state that the localization of the site of a coronary occlusion by the form of the R-T deflection is not accurate. The paper has attacked an important problem in cardiology in a thoroughly satisfactory manner.

J. FEIGENBAUM

**Experimental Nephrotic Œdema.** Leiter, L., *Arch. Int. Med.*, 1931, 48: 1.

By the experiments detailed in this paper, Leiter has added a good deal to our knowledge of the pathological physiology underlying œdema. He proves definitely that a certain type of œdema can always be produced by experimental reduction of the proteins in the circulating plasma. He has accomplished this by bleeding dogs, substituting the plasma by Locke's solution, and then injecting the solution with the red corpuscles into the animals (plasmaphæresis). About forty dogs were employed in the work. Nephrotic œdema was regularly induced when the protein in the plasma fell to 3 g. or less. An increase in the protein content above the latter figure caused a disappearance of any œdema. Leiter was able to prove that the œdema produced in his experiments was independent of any changes in the kidneys, heart, or capillaries. He emphasizes the fact that the œdema he obtained was of the nephrotic type, and that the distinguishing feature of the latter is the extremely low protein content of the œdema fluid.

The author was able to confirm some earlier work by Whipple that the reduction of plasma proteins is compensated for by an increase in the globulin rather than the albumin fraction of the blood. In this respect, at least, the animals resembled the patients with nephrosis, although the author is very careful to point

out that what he produced in dogs was nephrotic œdema and not nephrosis.

An investigation of the cholesterol values of the blood revealed some interesting findings. Hypocholesterolaemia was present during the periods of plasmaphæresis, while hypercholesterolaemia was found during the stage of recovery from the effects of the bleeding. Leiter indicates that these conditions are practically the reverse of those found in the blood in cases of true nephrosis.

As suggested earlier in this review, the author has insisted that the blood changes produced experimentally did not result in the renal lesions seen in patients with nephrosis. Sections of kidney from the animals did not reveal any of the degenerative changes in the tubules which are so commonly seen in nephrosis. The only histological lesions noted at all regularly were accumulations of round cells in various parts of the renal parenchyma. These findings are not in accord with those seen by other workers who have observed definite nephropathic effects in animals subjected to plasmaphæresis. The author explains the discrepancy by pointing out that dogs frequently suffer from spontaneous nephritis, and that this might have been mistaken for lesions induced by hypoproteinaemia. Moreover, Leiter cannot reconcile the minor changes occurring in the kidneys of his animals with the very characteristic rather severe lesions which are found in nephrosis.

The practical value of Leiter's research is that the results can be correlated particularly with certain renal diseases encountered clinically. It has been suspected for a long time, of course, that the massive œdema which accompanies the clinical picture of nephrosis is due chiefly to the reduction of protein in the plasma, and that this is the result of extensive albuminuria. Moreover, it is a well-known observation that a high protein diet, with the restitution of the normal percentage of protein in the blood, will be followed by a disappearance of œdema in nephrosis. Now we have clear experimental evidence which proves beyond peradventure that a lowering of the percentage of protein in the plasma below certain recognized limits will practically always cause œdema.

J. FEIGENBAUM

**Experimental Œdema.** Shelburne, S. A., and Egloff, W. C., *Arch. Int. Med.*, 1931, 48: 51.

The authors report their findings on the experimental œdema obtained in three dogs. They emphasize particularly the rôle which electrolytes play in the production of this condition, admitting at the same time the importance of a reduction in the plasma proteins.

Hypoproteinaemia was artificially induced by placing all the animals on an extremely low



protein diet of 5.2 grams per day. In addition to this diet, plasmapheresis was performed in two of the animals. When the total proteins of the blood reached the critical level (assumed to be about 3 g. per 100 cubic centimetres) the authors proceeded to test the effects of various salts upon the mild oedema which had already ensued upon the low plasma proteins. Sodium chloride, sodium bicarbonate and potassium chloride were employed, in quantities ranging between 13 and 26 g., with about 1600 cubic centimetres of water daily.

Shelburne and Egloff believe that the sodium salts, particularly sodium chloride, will bring about considerable oedema when administered to an animal with a low protein content of the plasma. Water alone, or potassium chloride will not produce significant oedema in such animals. Indeed, water and potassium chloride were seen to act as diuretics on several occasions. The authors are convinced that the sodium ion is the important one in the production of oedema. They have been able to show that the chloride ions are easily excreted by the kidneys when administered even to oedematous animals.

Another observation which merits comment is that histological examination of the kidneys in the experimental animals revealed "fatty changes" in the tubules. Leiter, who has also produced experimental oedema in dogs, has failed to find any striking changes in the kidneys of plasmapherized dogs, in spite of careful investigation of this point.

The important conclusion to be drawn from this paper is that in addition to a low plasma protein one requires certain electrolytes in order to precipitate massive oedema in dogs. The study is a distinct contribution to the subject and points the way to further work in this direction.

J. FEIGENBAUM

**Three Cases of Congenital Oedema (Milroy's Disease) in Two Generations of the Same Family.** Evans, E. L., *Proc. Roy. Soc. Med.*, 1930, 23: 1585.

Evans reports a family in which a disease of unexplained etiology, namely, Milroy's disease, occurred through three generations; in a man, his son, and the latter's daughter. The last two were the patients reported by Evans. The swelling of the lower extremities appeared immediately after birth, and persisted, despite rest, elevation to the horizontal position, and massage. The examination of the heart showed that organ to be normal, and there were no pathological findings in the urine. The oedema belonged apparently to that hereditary and unexplained type to which Milroy first gave prominence when he described a family affected with this disease in 1892. Twenty-two members were affected through five generations in this case.

MADGE THURLOW MACKLIN

**Gastric Hæmorrhage Due to Familial Telangiectases.** Boston, L. N., *Am. J. M. Sci.*, 1931, 180: 798.

A father and son suffering from this disease, first identified as a clinical entity by Osler, are reported by Boston. Both had repeatedly had gastric hæmorrhages which gave no signs of being due to an ulcer. The father had died of cerebral hæmorrhage. The son, who had numerous telangiectases on the face, had one attack of gastric hæmorrhage that threatened to be the last. He was in profound shock when operated upon. Two very vascular nævi in the mucosa of the stomach were found, and the artery supplying them was ligated. A period of five years elapsed from that operation to the time of the report, and during that time there has been no recurrence whatever of the bleeding from the stomach.

MADGE THURLOW MACKLIN

**The Specific Dynamic Action of Food in Abnormal States of Nutrition.** Strang, J. M., McClugage, H. B. and Brownlee, M. A., *Am. J. M. Sci.*, 1931, 182: 49.

These authors have studied the specific dynamic action of food in 18 persons, 5 of whom were thin, 8 obese and 5 normal, the latter being used as controls. They point out that many authors have observed a relationship between obesity or thinness and an abnormal specific dynamic activity of food.

Their method of study was to give the patients a meal of known calorific value and to determine the respiratory quotients at 1, 2, 3, 4, 6 and 8, hours after the meal. Simultaneous nitrogen studies on the urine output were not made. One of the first observations made was that the maximum rate of heat production after a meal cannot be employed in the determination of the specific dynamic activity. It is necessary to compute the total heat effect of the meal throughout the period of production of the extra heat, however long that may be. On this basis the authors were able to demonstrate that the heat of reaction after a given fixed meal is the same, regardless of the state of nutrition of the subject. They believe that the specific dynamic action of food is related to the development and maintenance of abnormal states of nutrition only through different degrees of satiety produced by the same increase in total heat production which accompanies these abnormal states. In this way the degree of satiety of the individual after a given quantity of food determines the quality and the quantity of the food intake and accounts for the production and maintenance of a state of thinness or obesity.

E. S. MILLS

## SURGERY

**Burns and Scalds.** Lloyd, E. I., *Brit. M. J.*, 1931, 1: 177.

A timely review of the present status of the treatment of burns is here presented, which opened a discussion of this subject in the section of surgery at the annual meeting of the British Medical Association. Improved industrial conditions have lessened the number of burns in workmen, the death-toll from such accidents being chiefly amongst children. The mortality in Fraser's Edinburgh Series (1926) in children under 10 years of age was only 38.7 per cent. Prognosis depends not on the depth of the burn but on the surface area involved and the age of the patient. Immediate death is due to shock, and is a physical process; later fatalities are dependent upon toxæmia, a chemical mechanism. Treatment must therefore be adapted to the individual case.

Emergency dressings are to be avoided, especially linseed and "carron" oils. Transportation to hospital, with morphia and fluids given for the first two or three hours, is advised. In local treatment, tannic acid, as introduced by Davidson, of Detroit (1925), is still the favoured application. The 2½ per cent aqueous solution minimizes the absorption of the autolytic products of protein decomposition, lessens pain, prevents subsequent infection, and produces but slight scarring. Anæsthesia is desirable and complete débridement of the damaged tissue. Even in the presence of subsequent infection under the coagulum, moist dressings should not be used, but drainage established, the patient remaining under the electric light cradle. Separation of the coagulum should be followed by flavine in paraffin dressings. Blood transfusion or exsanguination transfusion (Robertson) should only be necessary in well established toxæmia. Deformities and disfigurements following burns are dealt with by plastic surgery.

IAN G. MACDONALD

**Late Results of Simple Suture in Acute Perforation of Duodenal Ulcer.** Whyte, W. C., and Patterson, H. A., *Am. J. Surg.*, 1931, 94: 242.

The much-discussed problem as to the ideal procedure in this relatively common emergency is reviewed in an interesting fashion. Prominent surgeons in various centres differ radically on this question, and the recent trend in Europe towards radical measures in gastric surgery again raises the question.

The old aphorism that "bleeding ulcers do not perforate" is sustained by this series of 62 cases of perforated ulcer, only 3 per cent of which give a history of gastro-intestinal bleeding. Nor is vomiting common with the onset of perforation. After collecting data from several series of cases where the surgeon favoured simple

closure (Gibson, Farr, Brenner, Urrutia, Fentham), the authors, with their own cases exhaustively investigated, come to the following conclusions:—

(1) Simple closure is the treatment of choice in the vast majority of cases of perforated duodenal ulcer; (2) patients so treated, who survive, have a 60 to 65 per cent chance of remaining permanently free of gastric complaints, and a 10 to 15 per cent chance of requiring a gastro-enterostomy at a later date on account of pyloric obstruction; (3) the remaining 20 to 25 per cent will remain comfortable if careful as to diet; (4) primary gastro-enterostomy does not produce uniformly good results; (5) the results in pyloroplasty are doubtful.

IAN G. MACDONALD

**Aspiration of Joint Effusions.** Kling, D. H., *Ann. Surg.*, 1931, 94: 389.

The author remarks that many physicians are guided by the old maxim not to puncture a joint cavity. Many aspirate only traumatic effusions of long standing, while the greatest advantage is to be derived from early evacuation of the hæmarthrosis. Aspiration is of paramount importance in both accurate diagnosis and successful treatment. Joachim Bon-dessen published a report in 1887 dealing with 57 cases of traumatic effusion treated by aspiration and lavage of the joint with 2 per cent phenol solution, of which 86 per cent made complete recovery with an average duration of 21.3 days.

Mechanical and physiological factors alike indicate the advisability of early aspiration. The accumulation expands the capsule, stretches the ligaments, interferes with circulation, and causes muscle spasm. Blood, as has been shown experimentally, is absorbed very slowly from joint cavities, producing meanwhile inflammatory changes and degeneration of cartilage. The possibilities of infection and recurrence of hæmarthrosis are not real.

Aspiration should be done 24 hours after injury. Even in inflammatory effusions the mechanical benefits justify repeated aspirations, and recent studies show that the viscosity of the aspirated fluid becomes less, thus favouring absorption.

The diagnostic value of the aspirated fluid is even greater, if correctly interpreted. In traumatic cases, fat and bone-marrow elements point to severe injuries, while the finding of myelocytes and nucleated red cells in the sediment indicate intra-articular fractures. Differentiation of traumatic and inflammatory effusions may only be possible by determination of the bilirubin content of the fluid. The examination of definitely inflammatory exudates makes possible the differentiation of specific from non-specific forms of synovitis and



arthritis. The Wassermann test is reliable on joint-fluids, and the gonococcus complement fixation more reliable than in blood serum. Guinea pig inoculation in cases of suspected tuberculosis proves positive in many cases, and cultures, cell and differential counts and pH estimation may be used for information as to the stage, nature and progress of non-specific arthritis.

IAN G. MACDONALD

**Indications for Phrenic Avulsion in Bronchiectasis.** Oakley, W. G., *Brit. M. J.*, 1931, 1: 378.

This most recent method of securing therapeutic collapse in chronic pulmonary conditions is now recommended for selected cases of bronchiectasis. In certain other types of non-tuberculous disease it is also coming into vogue, as in pulmonary abscess, hydatid disease, and unresolved pneumonia (as a prophylactic against bronchiectasis).

Seventeen cases form the material from which the author's conclusions are drawn, the diagnosis having been definitely established in every case. In 4 cases complete relief followed, in 7 cases lasting improvement, and a temporary improvement with relapse in 6 cases.

The conclusions drawn are:—

1. Only in strictly basal and unilateral cases of bronchiectasis can phrenic avulsion be reasonably expected completely to relieve symptoms.

2. Temporary improvement follows in those cases in which the lesion has extended into upper or mid-zones, but relapse must be expected unless thoracoplasty is performed.

IAN G. MACDONALD

**Non-Parasitic Cysts of the Liver: Their Clinical and Pathological Aspects.** Ackman, F. D., and Rhea, L. J., *Brit. J. Surg.*, 1931, 18: 648.

The authors report in clinical and pathological detail a case of two non-parasitic cysts of the liver in a woman of 61 years who entered the Montreal General Hospital with signs and symptoms of acute cholecystitis. The patient was admitted into the service of Dr. A. T. Bazin, who, at operation, found her illness to have resulted from a hæmorrhage into the larger of the two cysts. Both cysts were aspirated and a portion of each was removed for histological examination. The larger of the two was packed with iodiform gauze and marsupialized to the parietal peritoneum. Recovery was rapid and uneventful. The cysts, the histological structure of which is described in detail, were reported as non-parasitic cysts of the liver of the bile-duct type.

Besides this case ten others were obtained from the Department of Pathology of the Montreal General Hospital in the past twenty-four years.

In commenting on this condition the authors point out that these cysts are not uncommon, as is substantiated by post-mortem findings. Of special interest are cases that come to operation. Seventy-six of these were collected from the literature. The etiology and structure of the more common types of cysts are discussed in some detail and several classifications are recorded and discussed. The authors offer the following classification: Congenital: teratomata; lymphatic cysts; blood-vessel cysts; ciliated epithelial cysts; cystic degeneration of the liver and kidneys; bile duct retention cysts. Acquired: degeneration cysts; cystadenomata; bile-duct cysts associated with acquired cirrhosis of the liver.

Diagnosis is very difficult and is rarely made before the abdomen is opened.

The congenital cysts are at first small and increase in size so slowly that the liver and adjacent organs adapt themselves to their presence without, as a rule, producing symptoms, unless complications develop. These are most commonly undue pressure on the bile ducts, neighbouring vessels or adjacent organs, secondary infections, or hæmorrhage into the cyst cavity. Occasionally, peritoneal drag causes indefinite pain, or an enlarging cyst upon the upper surface of the liver causes cardiac or respiratory embarrassment by compression or displacement of the thoracic viscera.

Since the favoured site of these cysts is the anterior inferior margin of the liver, pressure most frequently involves the gastro-intestinal tract and gives rise to various digestive disturbances. Occasionally the cysts are pedunculated. An important point in the physical examination is that the downward displacement is limited by the liver attachment, even when great lateral mobility exists. In the case of large cysts pain is increased on standing and decreased on lying down, while on the other hand the recumbent position increases dyspnoea.

Pneumoperitoneum, followed by an x-ray, has been disappointing in its results. The use of the aspirating trocar the authors condemn on account of the danger of contaminating the peritoneal cavity with infected material or echinococcus scolices.

Treatment is always surgical. Complications, such as hæmorrhage or acute infection, demand immediate operation. Complete excision is recommended where possible. When extirpation is impossible, the cyst should be laid open, as much of the wall removed as possible and the cyst packed and marsupialized, as was done in the case reported. If anatomical difficulties prevent this, the cyst may be anastomosed with the duodenum.

J. E. PRITCHARD

**Injection Treatment of Varicose Veins and Its Bearing on the Problems of Thrombosis.**  
Patey, D. H., *The Lancet*, 1931, 2: 284.

An attempt is made here to correlate the results in the injection treatment of varicose veins with the problems presented by spontaneous thrombosis of veins. The pathological changes are studied in the ear vein of rabbits, sections being taken at half-hour intervals for six hours, and at hourly intervals up to twenty-four hours. The thrombosis occurs within fifteen minutes and before there is any inflammatory change in the vein wall to account for the clotting. It is concluded that the thrombosis is a result of chemical action upon the vein wall releasing tissue fluids which promote coagulation. Actual action upon the blood and other possible explanations are investigated and ruled out. The comparison of this type of thrombosis with that of spontaneous thrombosis shows that the processes are essentially similar and involve the same factors—stasis and changes in the vessel wall. These overshadow any changes in the blood itself. The complication of pulmonary embolism is exceedingly rare, due to the stagnation of the stream in varices and the type of red, early-adherent clot which develops after injection. Injection ulcers are usually the result of leakage, tend to be chronic, and finally heal with marked fibrosis. Of various injection fluids sodium salicylate, 30 per cent, is found most effective and least toxic to the rabbits. Sodium morrhuate is more toxic, more powerfully hæmolytic, and less certain as a thrombotic agent. Quinine-urethane is the most toxic to rabbits.

J. B. ROSS

### UROLOGY

**Tumours of the Bladder.** Cunningham, J. H., *J. Urology*, 1931, 25: 559.

One of the chief problems in the successful eradication of tumours of the bladder is due to the fact that in many instances the disease runs its course without suspicion of its existence being aroused by local manifestations until the growth is far advanced. Many cases presenting themselves for investigation following the first attack of hæmaturia already show far advanced growth, and painless hæmaturia is almost pathognomonic. In many cases however a careful history will show that the patient has noted vesical irritability with sometimes cloudy urine for some time prior to the onset of hæmaturia, and hence the author urges cystoscopic examination in all cases of persistent cystitis. It is quite as important as the investigation of cases presenting hæmaturia.

There is great variation in the rate of growth. Cases are cited in which the development of extensive growths had occurred in comparatively short periods in patients who had been

under cystoscopic observation. There is a divergence of opinion as to whether benign tumours may subsequently change to malignant types. Some believe that where this occurs there is actually the production of a new tumour and not a true recurrence, but the fact remains that malignant tumours may be discovered in bladders which have previously harboured benign types.

The literature has few references to the frequency of metastases, but the impression seems to be that they are rare. The author has made a rather wide survey of the literature and has found that in cases where autopsies have been done on patients dying of carcinoma of the bladder metastases have been found in about 30 per cent of cases. Of 25 autopsies in his own clinic 32 per cent have shown metastases. Their distribution is variable, but the line of spread is by way of the pelvis and retroperitoneal lymph nodes, and extension not uncommonly takes place into the thoracic cavity and occasionally to the spine. It is to be remembered that many tumours of the prostate extend to the bladder and appear as growths of the bladder wall. In this case metastases are far more common than in tumours originating within the bladder itself.

The treatment of benign tumours is eminently satisfactory, using Beer's method of fulguration. In the majority of cases this is satisfactorily accomplished through the cystoscope. In the malignant cases there are many methods of attack, and the author reviews the development of these various methods and the experience of Beer, Barringer, Young and other authorities. In all cases where the tumour is of the papillary type the results are better than in the infiltrating type. Resection apparently offers the best chance of cure in suitable cases. When this is not possible radium and diathermy may be used, but their value varies in the experience of different operators. Cystectomy, as a curative procedure, or uretero-enterostomy alone, as a palliative procedure are, in the author's opinion rarely justifiable.

N. E. BERRY

**Spontaneous Rupture of the Urinary Bladder.**  
Stone, E., *Arch. Surg.*, 1931, 23: 129.

According to Stone the term "spontaneous rupture" should be applied to those cases resulting from pathological changes in the wall of the bladder or obstructive lesions at the neck of the bladder or in the urethra, irrespective of the presence or absence of pathological changes in the bladder. Up to the present time 40 such cases have been reported in the literature, to which list the author adds two more.

The first was in a girl of 9½ years of age, who was admitted to the Rhode Island Hospital complaining of a limp. Four years previously



she had had a non-tuberculous osteomyelitis of the right os calcis, right hip and right ulna. A week prior to the present admission to hospital she began to limp and developed pain in the right hip and fever. Three weeks later there was a sudden onset of frequency of urination, burning, spasm and extreme dysuria. The urine was laden with pus. She had never had any urinary symptoms before this time. No tubercle bacilli were found in the urine. A few days later, an abscess of the right hip was incised and evacuated. There was a positive culture of *staphylococcus aureus*. No tubercle bacilli were found in the smears. Ten days following the operation the dressing was found to be saturated with urine. A cystoscopic examination was made under gas oxygen anaesthesia. About 2 cm. directly posterior to the right ureteral orifice there was seen a circular opening in the wall of the bladder. Twenty-five c.c. of potassium iodide were injected through a catheter introduced into the rent in the wall of the bladder. Roentgenographic examination "showed evidence of the opaque material extending from the bladder laterally, then downward anterior to the acetabulum, then downward and posterior to the femur to the lateral aspect of the thigh." The patient urinated within six hours after the cystoscopic examination and continued to do so though for 16 days prior to this examination she had voided nothing by the urethra. A few weeks later the sinuses in the hip closed. Apart from an acute otitis media the patient made a good recovery.

The second patient was a man of 67 years of age who was admitted complaining of pain in the lower left abdominal quadrant for six days. There was a history extending over some years of frequency of urination and nycturia. For one year he had been troubled by "gravel" passing by the urethra. Since the onset of the present illness he had passed only a few drops of thick bloody urine. He was toxic on admission and his temperature 104° F. A catheter was passed into the bladder, but only a few drops of blood-stained purulent fluid were obtained. Boric acid solution 550 c.c. was injected into the bladder through a catheter, but only 30 c.c. were recovered. The abdomen was opened under a suprapubic midline incision. No fluid was found in the abdominal cavity. Following repair of the peritoneum the bladder was opened but no rupture was located. There were neither stones nor urine in the bladder. Throughout the left side of the space of Retzius, there was an extensive extravasation of urine, with much necrotic and purulent matter, amid which was a calculus the size of a bean. One drainage tube was placed in the bladder and another in the left side of the

space of Retzius. The patient survived the operation seven days.

The diagnosis of spontaneous rupture of the bladder depends upon whether the site of the extravasation is intraperitoneal or extraperitoneal. When the former, there is a history of chronic or more frequently acute retention with the onset of severe lower abdominal pain during attempted micturition, defaecation or other effort. The patients are frequently in shock when first seen and give evidence of an acute abdominal condition. The abdominal wall is rigid and the intestines are distended. There may be shifting dullness in the flanks. Where the extravasation is extraperitoneal the onset of the actual rupture is usually insidious. The patient is not seen by the consultant at the hospital until several days have intervened and he is in a septic condition. Tenderness and oedema are present above the pubes. In the female, this may be determined by vaginal examination or by rectal examination in the male, around the base of the bladder or in the lateral aspects of the space of Retzius. Petersen's sign is a faint blush and tenderness about the umbilicus, present as early as the sixth hour after rupture. Operation should be undertaken as soon as the diagnosis is established. In the intraperitoneal type the abdomen should be opened and good abdominal drainage provided. The rent in the bladder need not be sutured if cystotomy is performed with adequate suprapubic drainage. In the extraperitoneal type of rupture good suprapubic drainage is necessary. For the perivesical cellulitis drainage depending on the location of the infection is required.

G. E. LEARMONTH

## OPHTHALMOLOGY

**On the Frequency of Tabetic Optic Atrophy and Its Treatment.** John, I., *Zeitschr. f. Augenheilk.*, 1929, 69: 283.

John investigated records for four non-consecutive years, each year representing a different phase in the changing methods of treatments in syphilis. The years chosen were 1905, 1910, 1920, and 1925. There were 83 patients treated during these periods. In 1905 the treatment given was potassium iodide; the same treatment was given to patients in 1910 except one case in which mercury was used. In 1920 endo-lumbar salvarsan treatment was given three patients; three were given malaria; whilst three others only received potassium iodide. In 1905 the treatment was more varied; two patients had malaria with salvarsan treatment; another had this treatment with eight sub-occipital injections of air; endo-lumbar and intravenous injections were given in one case, and in another salvarsan and phlogetanin;

mercury and salvarsan were employed in one patient, and Mirian strychnine in another.

John concludes from his examination of these figures that there is no evidence to support the view that tabetic atrophy has assumed a milder form in recent years. It is worthy of note that among the cases seen in 1920 and 1925 there is not a single one that had been treated in the first instance for syphilis by the modern method of salvarsan or mercury. John found that where atrophy was established, the most satisfactory treatment was potassium iodide only. John believes that there is no evidence that the more recent methods exercise a more favourable influence on the course of this affection than the former ones.

S. HANFORD MCKEE

**Latent Nystagmus.** Sorsby, A., *Brit. J. Ophth.*, 1931, 15: 1.

This article consists of a review of the literature, and some case reports, followed by an elaborate discussion. Sorsby believes that latent nystagmus is a condition in which nystagmus not normally present when both eyes are open becomes manifest on the occlusion of one eye, or through the action of other stimuli. Cases are reported to show the extreme inconstancy of the detailed features of this type of nystagmus. The conception of latent nystagmus as a distinct clinical entity is questioned.

S. HANFORD MCKEE

## HYGIENE AND PUBLIC HEALTH

**Community Child Health Programme.** Bolt, R. A., *Am. J. Pub. Health*, 1931, 21: 843; Wilinsky, C. F., *ibid.*, 851; Brown, W. H., *ibid.*, 857.

Bolt's contribution to this symposium deals with the infant before, during and after birth. He points out that at conception heredity is sealed; thereafter environment will modify or mould the individual along patterns that heredity has laid down. We have enough knowledge to prevent many of the disasters which occur during fetal life. The earlier the prospective mother comes under skilled medical and nursing supervision, the greater the opportunity for applying such knowledge. Instruction of prospective mothers should begin in mother-craft classes in the schools. Expectant mothers may receive it at health centres, through visitation by public health nurses, letters, press articles, etc., or at home from doctor and nurse; and they should be protected against infections, malnutrition and industrial stresses and strains. The British system of prompt notification of births with a report on condition of mother and babe is commended as facilitating follow-up. The

health of the mother should have attention not only throughout pregnancy but afterwards in the interest of the infant. Breast-nursing, is, of course, advocated. Provision of obstetrical services for rural districts is recommended. Proper obstetrical training for physicians and nurses is of the utmost importance. Periodic medical examinations should be made during the first year of life. Early vaccination and immunization against diphtheria and measles are advised.

Wilinsky discusses the community health program as it applies to the child of from one to six years—the pre-school child. Twenty-five per cent of all deaths, and 80 per cent of deaths from communicable diseases occur in children under age five years. A high percentage of physical defects are found in children just admitted to the schools. All of which “justifies the correct presumption that this is, indeed, the neglected age”. Among the “necessary functions” of a community program our author emphasizes periodic medical supervision of the apparently well child, and lauds the well baby clinic and the vigilant public health nurse. Proper dietary habits, proper posture, mental hygiene, care of the teeth, safeguarded play and immunization should be secured, either in whole or in the more essential parts. As for the family physician, “While the health officer cannot logically exclude from clinics supported by taxation the child of the taxpayer, he will however, morally support, and will lend his material aid to a campaign for the education of the community in regard to the ability of the family physician to participate in the promotion of the public health.”

The child from six years to adolescence claims Brown's attention. For such child an adequate school health program is coming to be considered an essential part of a modern educational system. One-seventh of the population is in this age group. The present school health program has developed through several stages. First, inspection—but “you cannot inspect children into health”. Then, instruction—but “you cannot instruct the child into health”. Then, physical education—and “it is not impossible to exercise children into health”. As minimum essentials, Brown lays down health instruction and training, medical supervision, hygiene of the school program, and hygiene of the school plant. By hygiene of the school program is meant attention to length and arrangement of the program and skilful uses of rest periods and recesses: the other “essentials” do not require definition. Some schools have some of these essentials well in hand, but few have them functioning as a whole. Brown would place “the health program in charge of a properly qualified person



who has both the authority and the skill to weld the diverse interests and activities into a unit for the service of the child".

W. H. HATTIE

**Iodine in Nutrition.** Weston, W., *Am. J. Pub. Health*, 1931, 21: 715.

A specific influence of certain marine products on the thyroid gland has been recognized for more than twenty-five centuries, but that this is attributable to iodine remained unknown until 1815, four years after the element became known to chemists. As early as 1820, it was realized that while improvement followed the use of iodine in some cases of goitre toxic symptoms developed in other cases. Of the many names of pioneers mentioned in Weston's paper, that of Chatin, of Paris, stands out conspicuously. Eighty years ago he announced that goitre is uncommon where soils and waters are relatively rich in iodine, whereas under opposite conditions goitre and cretinism are prevalent. Following this came a wave of enthusiasm for inorganic iodine in the goitre areas of Europe, with many instances of poisoning. We have heard something similar of places nearer home and in more recent days. Knowledge still comes to us, and we now have some information relative to the occurrence of iodine in the body, the iodine requirements of the body, and the part played by iodine in nutrition. It would seem that the requirements are much less than was formerly thought, that inorganic iodine is uncertain in action, that organic iodine is more dependable, and that there is no record of poisoning from the administration of iodine in organic combination. Inorganic iodine leaves the body quickly, mostly through the kidneys; organic iodine is set free from combination slowly and consequently is eliminated slowly. Diets should be selected which will supply the iodine that the body can utilize. In a general way it may be said that sea-fish contain relatively large, though variable, amounts. Lean fish, such as haddock, cod, coal-fish and halibut, have a higher iodine content than fat fish, such as herring and salmon, and shell-fish have a still higher content. Variations in the iodine content of sea fish depend *inter alia* upon the food supply, an abundance of plankton, for instance, meaning food rich in iodine. The iodine content of vegetables also varies, those grown in some soils being richer than those grown in others. This is of special interest on account of the opinion of pædiatrists that goitre in children is becoming more prevalent in some sections of the country. Weston believes that "where people do not have goitre or other manifestations of iodine deficiency they receive iodine in its organic relation as it exists in milk, vegetables and fish."

W. H. HATTIE

**Medical Supervision at Air Ports.** Holden, O. M., *J. State Med.*, 1931, 39: 457.

In discussing some difficulties in medical supervision at air ports, Holden refers to the possibility of new problems being created as air travel becomes more general and the cruising range of aircraft becomes greater. Infective insects, as well as infective persons, must be taken into account. Several countries have already formulated regulations, and the Office International d'Hygiène Publique has drawn up a provisional air convention, which is directed primarily against the importation of infectious disease. Egypt is now giving attention to the possibility of importation of cholera from the East. The most pressing desideratum at an air port is the saving of time, so motor or other transportation from the air port is hurried in comparison with the rather leisurely proceedings at a sea port. Air line companies, therefore, do not look favourably on the detention of passengers for medical examination. Nevertheless, there are possibilities of dangers to the public health in air traffic which are absent from seaborne traffic. Persons who may be incubating such conditions as cholera, yellow fever, plague, typhus or small pox are much less likely to manifest symptoms on arrival after the rapid trip by air than would be the case had they travelled by sea. However, passengers by air compare with those who engage first class accommodation by steamer, and do not require such attention as is given to other types of passengers at sea ports. Holden feels that mere medical inspection would not be a sufficient safeguard, and suggests that medical certificates of physical fitness, validated at ports of departure and presented at ports of arrival, would be more reliable. Passengers from infected areas should, of course, be kept under surveillance as in the case of those arriving by sea. For some areas, the principle of detention and observation may, at times, be advisable. Certain aerodromes might be specifically designated for medical examination, detention, etc., for use should the need arise. Regulations should be made to apply to forced landings. Special rules are suggested for application to yellow fever zones.

W. H. HATTIE

**Aeroplane Sewage Disposal.** Bell, H. H., *Am. J. Pub. Health*, 1931, 21: 856.

In this short communication Bell protests against the promiscuous distribution of human excreta which characterizes air travel in America. Railways contaminate soil over a definite source which may be taken into account when public water supplies are being planned, but air-borne traffic may contaminate any region, any water supply, or any reservoir.

The adoption of receptacles similar to those in use in British passenger planes is suggested.

W. H. HATTIE

### RADIOLOGY

**The Roentgenologic Significance of Pyloric and Prepyloric Deformities.** Camp, J. D., *Radiology*, 1931, 16: 847.

The interpretation of lesions in this area is rendered difficult by the fact that 60 per cent of all gastric carcinomas, 69 per cent of benign gastric tumours and 10 per cent of gastric ulcers are found here. Also spasm, the arch-deceiver of the roentgenologist, chooses this as a favourite site.

Pyloric carcinoma is divided into groups, as follows:— (1) polypoid carcinoma with or without ulceration; (2) scirrhus carcinoma; (3) malignant degeneration of benign ulcer; (4) malignant degeneration of benign tumour.

Prepyloric conditions include ulcer, gastritis, gastric syphilis and various spastic phenomena as well as hypertrophy of the pyloric musculature. Extragastric conditions named here are: (1) reflex spasm; (2) extrinsic pressure; (3) adhesion and (4) malignant disease with secondary infiltration of the stomach.

After the most minute care by the roentgenologist in examining this region, it is sometimes impossible to arrive at a conclusive diagnosis, for more than one disease may produce grossly the same pathological picture. Therefore, the final decision is often left to the pathologist.

A. STANLEY KIRKLAND

**Irradiation Therapy in Functional Ovarian Disorders.** Ford, F. A., *Radiology*, 1931, 16: 936.

Owing to the uncertainty in the minds of many as to the optimal dosage in the treatment of cases of ovarian insufficiency and the degree of success and duration of results to be anticipated, the cases treated in the Department of Radiotherapy of the Mayo Clinic in the past four years are presented. The series includes 47 cases treated primarily for habitual amenorrhœa or for oligomenorrhœa or sterility associated with these conditions and 29 cases of dysmenorrhœa. The dosage used was 15 to 20 per cent of an erythema dose, 200 kilovolts peak, with filters of 0.75 mm. copper and 1 mm. of aluminum, over each ovary through ports of 8 by 10 cm. When the hypophysis is rayed, ports of 5 by 5 cm. are used with cross fire.

Re-establishment of menstruation was obtained in 26 out of 47 cases. Menstruation has continued regularly in the majority of cases for periods varying from a few months to two years. Seven pregnancies have occurred in 6 of the 24 married patients in the group. Three

full term children have been born, two of whom are living and well. Two pregnancies are continuing at the time of writing. Of 29 cases of severe dysmenorrhœa, relief of pain following radiation has been noted in 18.

A. STANLEY KIRKLAND

**Influence of Red and Blue Rays on Growth.**

Ludwig, F. and Ries, J., *Strahlentherapie*, 1931, 39: 485.

What follows is abstracted from a review of the original paper in the *British Journal of Physical Medicine* for July, 1931. The authors are seemingly in agreement with those who maintain that there is antagonism between red and ultra-violet light, and assume that "in all circumstances any action produced by ultra-violet light can be negated by red or infra-red radiations". But they believe that the effect of single colours is quite different from that of the combination which gives us white light. They report experiments carried on, under rigid conditions, to ascertain the effect of prolonged, continuous exposure to either red or blue light. Rats grown under red glass attained much greater size and weight than others grown under blue glass, and otherwise showed greater vigour. Those grown under blue glass did rather better than those grown in ordinary light. Plants grown under colour developed longer stalks, but did not show the "nice green colouring of the controls", and the shape of the leaves was altered. The authors conclude: "Perhaps there is a possibility that human growth, especially in childhood, can be favourably influenced by red light."

W. H. HATTIE

**NEW CAMERA PHOTOGRAPHS INTERIOR OF EAR.**—The interior of the human ear, reports *Science Service*, can now be photographed with a new camera developed by Dr. Richard Millar, director of the photography division of the Methodist Hospital of Indianapolis. The ear camera is hailed by the medical world as a distinct step forward in the treatment of ear diseases. For the first time in medical history a pictorial record of different stages of ear diseases can now be kept. The camera takes pictures 120 times as large as the inner ear. With the use of a special concave mirror, a powerful beam of cold light is focused ingeniously into the patient's ear. The exposure is made through a hole in the center of the reflecting mirror which is turned to deflect the light from the lens of the camera. Heat is extracted from the light beam by passing it through a flat glass flask filled with ice water before it reaches the ear. A clever ground-glass arrangement fitted into the side of the camera enables the surgeon taking photographs of the inside of an ear to see the image which is passing through the camera lens even when he is operating the shutter. Thus he can see exactly the image that falls on the plate or film. Dr. Millar is now at work on a camera which will take the picture of the back of the eye. He predicted that soon a camera will be developed that will photograph the inside of the human head from the inside.—*The Diplomat*, 1931, 3: 13.



## Obituaries

**Dr. Leonard Milton Murray** died suddenly at his home in Toronto Saturday, August 8, 1931, under tragic circumstances. His family were abroad and unable to reach Toronto in time for the funeral which was held on Thursday, August 13th.

Dr. Murray was born in Truro, Nova Scotia, in 1875, and graduated from McGill University Faculty of Medicine in 1900. He was sometime Provincial Pathologist of Nova Scotia and Professor of Pathology, Halifax Medical College; later Attending Physician, Halifax Children's Hospital and Professor of Medicine, Dalhousie University (Halifax). He served overseas during the War, at first in France and later at Bushy Park, England, the Canadian hospital for cardio-vascular cases. In 1919 he came to Toronto as Consultant in Diseases of the Cardio-vascular System, for what is now known as the Federal Department of Pensions and National Health. He was appointed to the Department of Medicine, University of Toronto and to the Staff of the Toronto General Hospital for the years 1919 to 1928, when he resigned, largely on account of the pressure of work due to private practice and the Departmental work at Christie Street Hospital.

During his professional life he did post-graduate work in England, the United States and abroad. He was a Fellow of the American College of Physicians and served on the Board of Regents for many years. He was elected a Fellow of the recently formed Royal College of Physicians and Surgeons of Canada in 1931. At the time of his death he was, in addition, a member of the Toronto Academy of Medicine, the Ontario and Canadian Medical Societies, the American Therapeutic Association and the Association for the Study of Internal Secretions. His later publications dealt entirely with disease of the cardio-vascular system.

The above is but a brief outline of his professional career. His advent to Toronto was a happy one for those of his friends who lived here. Strong bands of esteem and affection quickly took root, not only amongst the members of the medical profession, but as well amongst those who sought his advice and all who came in contact with him. There are those, not necessarily classed as cynics, who regard this as a real accomplishment. He was a member of The York Club and The Lambton Golf Club.

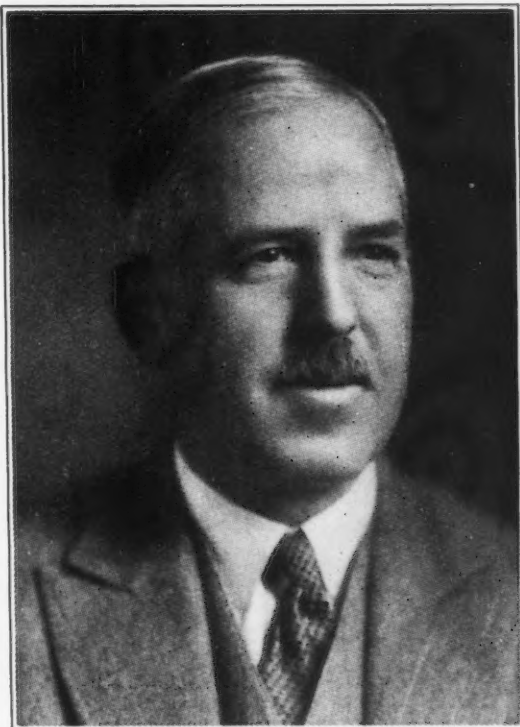
Saturday, August 8th, was warm. Dr. Murray had planned a fairly full day, which was begun by meeting two distinguished guests at the station early in the morning. This was followed by a foursome at golf, during which he played a good game. That he nevertheless felt under some distress is evidenced by the fact that he took an early morning mixture of soda bicarbonate, repeating this after his return to his house in the early afternoon. He apparently refused to do more than rest for a short time before again driving to the hospital to see a patient. After his return from the hospital he was in evident distress and to those of us who have

learnt his philosophical outlook on life it is evident that he more than suspected his real condition. This time he took a definite stimulant, but shortly after insisted upon receiving his guests who had been elsewhere for tea. As all were tired and the day hot, a short rest was welcomed before dressing for a more or less formal dinner which was to take place later at the York Club. The chance call of one of the guests as to the time of dinner led to the discovery of his collapse and death but a few minutes after he had seen that his house guests were comfortable. In the crucial few hours before his death, and while under distress, philosophy rather than medical judgment guided his actions—to the bitter sorrow of many. The diagnosis would seem to be coronary thrombosis.

It is of professional interest to record that four electrocardiographs had been taken, the last being in February, 1931. In his own phraseology these fell within the accepted normal, except for a slight left ventricular preponderance. A more definite indication is given in that but a few days previously in talking over the effect of golf on hot days with one of his colleagues a slight amount of discomfort was mentioned, if the day were hot.

In the delicious intimacy of an evening's relaxation amongst a few friends, which he so thoroughly enjoyed, Leonard had more than once declared that when he "went" he hoped he would go quickly, that he would be buried without "fuss or fumble" and "be forgotten". The first part of this wish has been fulfilled. The last, for his colleagues, for those who sought his advice or held his friendship, is impossible. His personality, charm, humour, sympathy and ability will in their memory endure for all time.

A. H. W. CAULFEILD



Dr. Leonard Milton Murray

**Dr. Edmund St. George Baldwin**, a member of one of Toronto's oldest families, died at his home on August 31, 1931, in his eightieth year. He was a son of Rev. Canon Edmund Baldwin, of St. James's Cathedral, and was educated at London, Ont., Toronto University, and at Edinburgh, where he took his medical degree in 1875. After post-graduate work in Edinburgh he obtained the diploma of L.R.C.S. in 1877. It is noteworthy that he acted as house surgeon under Lister, who had a high regard for him. Baldwin, on his part, had a very clear perception of Lister's teachings and was a life-long admirer of "the Chief." In April, 1912, a meeting was held in the Academy of Medicine of Toronto, to observe the death of Lord Lister, which had occurred in the preceding February, at which various papers on phases of Lister's work were read, among them one by Dr. Baldwin. The late Dr. F. LeM. Grasset, also one of Lister's house surgeons, was a cousin.

Dr. Baldwin, in 1899, married Miss Helen Montizambert, daughter of the late E. Montizambert, of Quebec. Mrs. Baldwin died in 1927. There were no children. Dr. Baldwin was an Anglican, and a member of St. James's Cathedral. He was not recently in practice.

**Dr. George Edward Josephs.** One of the most notable and influential citizens of Pembroke was lost when Dr. G. E. Josephs passed away on May 20, 1931, after an illness which had lasted more than a year.

Dr. Josephs was born at Duxbury, Mass., on February 15, 1858, and came to Pembroke with his parents when twelve years old. He attended the schools there and then entered McGill University where he took his medical degree in 1881. Returning to Pembroke, he purchased the practice of the late Dr. Laverty with whom he had been associated a short time previously. Careful, painstaking and methodical, Dr. Josephs raised himself to the forefront of his profession, and after fifty years of practice was admittedly a leader in his town, having attracted to himself the respect and affection of a wide circle of patients and friends. His type of mind may be readily inferred from the fact that he kept full and accurate notes of his surgical and maternity cases. Withal, he was a man of sound judgment and high character.

At the time of his death Dr. Josephs was the doyen of the medical profession in Pembroke, had been jail surgeon for fifty years and medical officer for the Canadian Pacific Railway for twenty-five years; he was also a county coroner. He took a deep interest in the Cottage Hospital and was a member of the Board of Governors. Deeply interested in educational affairs, Dr. Josephs served many years on the Board of Education and was a former chairman of that body. He also served on the Library Board, taking a close interest in its affairs, and had also been chairman.

Although not actively engaged in politics, Dr. Josephs was at one time prominent in this sphere of activity and had been president of the North Renfrew Liberal Association. Of late years, however, he had given his support to the Conservative cause. A gifted public speaker, his services were greatly in demand and from a vast store of information he was able to speak interestingly and authoritatively on a variety of subjects.

A devout Anglican, Doctor Josephs was a prominent member of Holy Trinity Church here and had been rector's warden and lay delegate to the Synod for several years. He retired from the office of warden last year because of ill health and was appointed honorary warden in recognition of his valuable service to the church.

As a member of the Masonic Order, Doctor Josephs had held various high offices. He was a Past District Deputy Grand Master of Ottawa District A. F. & A. M., and a member of the Mystic Shrine.

Doctor Josephs had been for years afflicted with diabetes and had on a number of occasions consulted the well known specialist in this disease, Dr. Elliott P. Joslin, of Boston. The disease developed at the age of fifty-three. At that age the ordinary expectation of life is nineteen years, but Doctor Josephs, by dint of careful management and strict attention to the regimen prescribed, was successful in living for twenty years, a real triumph for medical science. The knowledge he obtained by the handling of his own case was employed to the advantage of numbers of his

patients. Last year a fund was established at the New England Deaconess Hospital to provide a medal to be given to "such diabetics who have demonstrated their courage and intelligence by living longer with diabetes than they were expected to live without it according to life expectancy tables at the time their disease developed." Accordingly, last January, Doctor Josephs received the medal, with an appreciative note from Doctor Joslin. Medical men everywhere in Canada will be pleased to know what can be done with so serious a disease as diabetes where there is a will and an intelligent conception of the way.

The funeral was one of the most impressive seen in Pembroke in years. Upwards of one hundred cars were in the cortege, which followed the body, and included among those in attendance were townspeople

from all walks of life, desirous of doing honour to one who had lived here for over three-score years and who, for half a century, had been a leading member of the local medical fraternity, and had given generously of his time and talents to many organizations having for their object the welfare of the town and helpfulness to its citizens.

Holy Trinity Anglican Church, where Dr. Josephs worshipped all his life, and in the affairs of which he always took a leading and generous part, was not large enough to accommodate all those desiring to gain admission for the funeral service. The rector, Rev. R. H. Waterman, officiated, while present also were two former rectors, Rev. Canon Netten, of Cornwall, and Rev. T. L. Aboon, of Ottawa, as well as Rev. Canon Quatermaine, of Renfrew, and Rev. T. A. Jarvis, Pembroke.

Afterwards the lengthy cortege proceeded to the Anglican cemetery, where the committal service was

conducted by Rev. T. L. Aboon. Following this, the impressive Masonic burial service was conducted by members of the local lodge, a service which Dr. Josephs had himself conducted so often for other deceased members of the craft.

The public library was closed out of respect to the memory of Dr. Josephs and the flags on the local schools were at half mast.

Dr. Josephs was twice married. His first wife, formerly Miss Minnie Rath of Smiths Falls, died some years ago and he later married Miss Margaret Gracie, who survives him. One sister also survives, Miss Emily Josephs, of Pembroke.

**Dr. Calvin Alfred Ames**, of Toronto, died of heart failure on July 6, 1931. He was a graduate of McGill University (1902) and had served overseas in the C.A.M.C. At one time he had practised in Newfoundland, and, later, in Newmarket, Ont.

**Dr. Thomas Henry Ashby**, who practised his profession in the Avenue Road and Roxborough Street district for the past twenty years, died on September 7, 1931, at his residence in Toronto, aged 74 years. He graduated M.B. in 1878 from Trinity and Toronto Universities, and was L.R.C.P. of London (1879). He



Dr. George Edward Josephs



was deeply read and always kept abreast of developments in medical science.

**Dr. James Priestly Austin**, aged 45, of Windsor, Ont., dropped dead in his home on September 4, 1931, the victim of a heart attack.

Dr. Austin, who was president of the Essex County Medical Association, appeared to be in his usual good health the day before and played 18 holes of golf at the Essex Golf Club, Lasalle, of which he was a member.

He was born in Essex, Ont., and was a graduate in medicine of the University of Toronto (M.B., 1913). A widow and three children survive.

**Dr. George Cooper** died at London on August 15, 1931. A graduate of Trinity University (M.D., 1892), and of Toronto University (M.B., 1906), he practised in northern Ontario for 20 years. For the past year he was on the staff of the Ontario Hospital at London. Death was due to heart trouble. A veteran of the world war, he had been medical officer of the second Gordon Highlanders in the Imperial army.

Dr. Cooper's home was originally in Toronto, where his widow and family now reside. Prior to joining the staff of the Ontario Hospital, he practised medicine in Orillia.

**Dr. George Logie Dollar**, of Hornepayne, Ont., died very suddenly at the Union Station, Toronto, on September 15, 1931, from a heart attack. He was forty-five years of age. Dr. Dollar had been ill during the day and had twice consulted a physician. He had just handed his railway tickets to the gateman when he swerved and collapsed. Death was instantaneous. With him at the time were his wife and four small children, whom he was meeting to take back to their home. Dr. Dollar was physician for the Canadian National Railways at Hornepayne, and a graduate of Toronto University (1921). Mrs. Dollar was formerly Miss Margaret Campbell.

**Dr. William Lyman Hume** (McGill, 1875), one of the oldest graduates of his university, died at Leeds, P.Q., on June 28, 1931.

**Dr. J. Borthwick Hutton**, died on August 2, 1931, after a long illness. He was about 42 years of age, a brilliant scholar and a distinguished graduate in medicine of Queen's University in 1909. He was a son of the late J. O. Hutton and Mrs. Agnes F. Hutton of 142 Albert Street. A sister, Mrs. Lloyd Davis, resides in Oshawa.

**Dr. Narcisse Lacerte**, of Levis, Que., died there on September 18, 1931. He was ninety-two years of age, and was probably the oldest practising physician in the province, having been a doctor for sixty-eight years. He is survived by his wife and two sons.

**Dr. David Brownlee Lazier**, of Fraser Lake, B.C., passed away on August 3rd, after a long illness. The late Dr. Lazier graduated from Queen's University in 1901, with the degrees of M.D., C.M. He had practised in northern British Columbia for many years.

**Dr. William Joseph Mabee**, of Toronto, suffered a heart seizure and was found dead with his head resting on the steering wheel of his car on August 23, 1931. He had driven his car a short time prior to his death, and was apparently in good health.

The late Dr. Mabee was single and was 51 years of age. His parents died when he was very young, and he worked his way through his course in medicine. In 1908 he graduated from the University of Toronto. He had a host of friends among the medical profession and for

a number of years was attached to the staff of Toronto General Hospital. He had decided only recently to move his office to Avenue Road from Church Street where he had practised for 15 years. Before studying medicine at the University of Toronto, he graduated from the Ontario College of Pharmacy.

He was a member of King Solomon Lodge, A.F. and A.M., a Liberal in politics, and an ardent fisherman.

**Dr. Daniel Allan Morrison** died suddenly at Louisburg, N.S., on August 29th. Dr. Morrison graduated at the College of Physicians and Surgeons, Baltimore, in 1893, and spent his whole professional life in the historic town of Louisburg where he enjoyed the confidence and esteem of a large clientèle.

**Dr. Edward Provost**, one of the oldest physicians of Sorel, Que., died at his home on August 24, 1931. He was 70 years of age and the son of Dr. Gilbert Provost. He took up his studies at the local classical college and then at Laval University. He had practised in the Sorel General Hospital, where he became one of the chief internes. He was once a governor of the Provincial Medical College.

**Dr. William McLean Rowat**, of Athelstan, Que., died on June 18, 1931. He was a graduate of McGill University (1886) and had served for many years as Coroner for the District of Beauharnois. He had also been an influential member of the Protestant Committee of Public Instruction.

**Dr. Arthur Simard**, professor at Laval University, and one of the most prominent surgeons in the Province of Quebec, died early on September 3, 1931, in the Hotel Dieu Hospital at Quebec, where he was taken a fortnight before. The deceased was a brother of C. J. Simard, director of the provincial museum.

The late Dr. Simard was born in the city of Quebec and was educated at the Quebec Seminary and Laval University, graduating in medicine "avec grande distinction" in 1890. In 1898 he married Mlle. Ernestine Marchand, daughter of the late Hon. F. G. Marchand, then Premier of the Province of Quebec.

**Dr. W. A. Stenning**, of Sherbrooke, Que., died on September 2, 1931. He was a graduate of McGill University (1894).

**Dr. Clarence James Stewart**, of Montreal, died on September 14, 1931, at the Western Hospital of which he was for some time medical superintendent. He was in his 39th year.

He was born in Cazaville, Quebec, in July, 1892, son of the late Dr. James O. Stewart. He received his early education at the Huntingdon Academy, later attending McGill University from which he graduated with the degrees of B.A. and M.D., C.M. in 1918. After a year with the Western Hospital, he did post-graduate work on the ear, nose and throat in New York, Berlin and Vienna.

He was a member of the University Lodge, A.F. & A.M., Westmount Chapter of Royal Arch Masons and of the Scottish Rite, and also a member of the University Club and of Phi Rho Sigma fraternity. He went overseas during the war with the 5th Canadian Mounted Rifles, under the late Col. Harry Baker.

He is survived by his widow, formerly Olga Phyllis Archibald, one son, Clarence James, and two daughters, Phyllis and Betty.

**Dr. Ezra Johnston Watts**, of Toronto, died on August 21, 1931, in his sixty-eighth year. He was a graduate in medicine of Queen's University (1886). Dr. Watts unfortunately was blind and had not practised since 1929.

## News Items

### British Empire

**Births and Deaths in South Australia.**—In many respects the latest returns from the State of South Australia show vital indices with which western Europe is familiar—for example, a birth-rate declining more rapidly than the death-rate, a corresponding decline in the rate of natural increase of population, and considerable reduction in the mortality from tuberculosis, but an increased loss from cancer. Both the birth-rate (17.2 per 1,000) and the crude death-rate (8.4 per 1,000) were in 1930 the lowest in the records of the State. For many years South Australia, in common with the other States of the Commonwealth and New Zealand, has had a very low mortality-rate for infants under one year of age, compared with other countries. In 1930 it was as low as 48 per 1,000 live births. The annual mean death-rate of infants under one year of age for the five years 1895-1899 was 110, and for the five years 1925-1929 only 47—a fall of 63. Almost the whole of this improvement is shown to have taken place at ages above one month and under 12 months. The death-rates under one month, under one week, and under one day of age show very little progress and the great majority of those dying under one month of age died from prenatal causes. These facts are, again, comparable with those of this country, and indicate the direction in which efforts for the saving of infant life should be directed. The Mothers' and Babies' Health Association, of which there are 44 branches in the State, is endeavouring to improve the position.

Over half the population are resident in the "metropolis," defined as an area approximately within a ten-mile radius of the General Post Office, Adelaide, and roughly equal proportions of the working population are employed in agricultural and industrial occupations.—*The Lancet*, 1931, 2: 415.

### Great Britain

**A Short Course in Tropical Medicine.**—The authorities of the London School of Hygiene and Tropical Medicine announce that they are about to modify the post-graduate course in tropical medicine. The five-months' course of intensive study hitherto in force, followed by examinations first for the certificate issued by the school and then for the Diploma of Tropical Medicine of the Conjoint Board, has been found to impose an undue strain upon candidates. Many of the colonial governments have found it difficult to release their medical officers for a sufficiently long period to enable them to combine what is in effect six months' study-leave with a much-needed holiday in this country. Further, the requirements of the colonial service are so urgent that a demand has arisen for a short course of instruction for recruits about to proceed overseas. After consultation with the Colonial Office and the Conjoint Board, it has been decided to divide the course of study into two parts: a three months' course of clinical and laboratory instruction and a two-months' course in tropical hygiene. Each course can be taken independently, and the Conjoint Board is arranging for an examination to follow closely upon each course of study. The internal school examinations will be discontinued, and students will be encouraged to sit for the diploma examination. Application has been made to the University of London for recognition of the revised course. The new three-months' course includes clinical tropical medicine, applied pathology, medical zoology, and

elementary bacteriology; the two-months' course includes instruction in the relation to tropical hygiene of bacteriology, medical zoology, anthropology, and vital and medical statistics. In order to meet the requirements of the modified course, the school has established a new division of clinical tropical medicine which can call on the combined resources of the Seamen's Hospital Society. The innovation will undoubtedly fill a need, and the facilities offered should make it easy for many more medical men and women to learn or revise the ground-work of tropical medicine, pathology, and hygiene.

**Clinical Trials of New Remedies.**—The Medical Research Council announce that they have appointed a Therapeutic Trials Committee, as follows, to advise and assist them in arranging for properly controlled clinical tests of new products that seem likely, on experimental grounds, to have value in the treatment of disease:—

Prof. T. R. Elliott, Physician to University College Hospital, London (Chairman).

Sir E. Farquhar Buzzard, Regius Professor of Physic, University of Oxford.

Dr. H. H. Dale, Sec.R.S., Director, National Institute for Medical Research.

Lord Dawson of Penn, President, Royal College of Physicians, London.

Prof. A. W. M. Ellis, Physician to the London Hospital.

Prof. F. R. Fraser, Physician to St. Bartholomew's Hospital, London.

Sir John Parsons, Ophthalmic Surgeon to University College Hospital, London.

Dr. J. A. Ryle, Physician to Guy's Hospital, London.

Sir John W. Thomson-Walker, Consultant Urologist to King's College Hospital, London.

Mr. Wilfred Trotter, Surgeon to University College Hospital, London.

Prof. D. P. D. Wilkie, Surgeon to the Royal Infirmary, Edinburgh.

Dr. F. H. K. Green (Secretary).

Conditions have been the subject of discussion and agreement between the Medical Research Council and the Association of British Chemical Manufacturers, under which the Therapeutic Trials Committee will be prepared to consider applications by commercial firms for the examination of new products, submitted with the available experimental evidence of their value, and appropriate clinical trials will be arranged in suitable cases. The Committee will work in close touch also with the existing Chemotherapy Committee, who are engaged for the Medical Research Council in promoting researches aimed at the discovery and production of new remedies.

The Therapeutic Trials Committee will invite suitable experts in particular branches of medicine or surgery to undertake the clinical tests of preparations accepted for trial. The reports of the results will be published under the authority of the Committee.—*The Lancet*, 1931, 2: 304.

**The Winnipeg Film.**—A "full house" awaited the exhibition of the films taken during the Winnipeg meeting of the British Medical Association, which were shown at the Technical Institute, Eastbourne, on the morning of July 21st. The films in respect of technique and dramatization may not have been up to Hollywood level, but they gave the greatest pleasure to the audience, many of whom had attended the meeting in Canada, and, after the lapse of eleven months, were making the



acquaintance of their screen images. The films were shown by Dr. H. Chitty of Bristol. He said that although officially described as the films of the Winnipeg Meeting they were in fact taken in various parts of Canada, and not many of the scenes were "shot" in Winnipeg itself. These amateur films had been the work of various people, and his difficulty had been to select from the large number handed to him those which could be conveniently shown at one session. He had therefore selected one film by Dr. Forsdike, two by Dr. Barclay, and one by himself; the Kodak Company had very kindly offered to take off his shoulders the responsibility for the actual projection. The films were then run through the projector. Some of them showed the skill of the amateur cinematographer in depicting Canadian scenery, such as the St. Lawrence, Niagara, the prairies, and the Rockies; others the more or less staged pageants and other events of the meeting. But what was most engaging of all to the audience were the glimpses of well-known persons in characteristic attitudes, the animated conversation of groups, and all the social movement which is perhaps the happiest part of an annual meeting. The audience, which filled the theatre of the Technical Institute to its utmost capacity, testified by applause its thanks to Dr. Chitty and the other producers.—*Brit. M. J.*, 1931, 2: 261.

**Recognition of the Services of the Retiring Medical Secretary of the British Medical Association, Dr. Alfred Cox.**—A representative General Committee has been formed of members who, after enquiry, expressed their desire to be associated with this Appeal, and from it an Executive Committee has been elected. A list of the members appears on the Appeal forms.

The General Committee, in meeting, decided:—

1. That a Fund be formed to provide the British Medical Association with a Painting in Oils of Dr. Alfred Cox, Medical Secretary; himself with a cheque; and, if he desires it, a copy of the painting in oils.

2. To take immediate steps to engage an artist of the first rank.

3. To make arrangements whereby medical bodies and members of the medical profession can purchase, if so desired, a copy of the painting in oils, an engraved copy, a photogravure, or oil facsimile (approved by the selected artist).

4. That directly, and through the medical press, an appeal should be made to members of the British Medical Association for subscriptions "not exceeding Ten Shillings per Member."

5. That to this, the original appeal (4 above), there be appended the names of all the members of the General Committee.

6. That, whilst accepting subscriptions from medical societies, local medical and panel committees, and non-members of the British Medical Association, no direct appeal be made to such.

7. That the names and addresses of subscribers to the fund be entered in a suitably prepared book for presentation to Dr. Cox.

8. That the presentation of the painting in oils, and of the cheque, be a function at the time of the Centenary Meeting in July, 1932.

A Portrait Sub-Committee has been in negotiations with artists of the first rank, and has now made its choice. The artist selected has stated that he "will be quite pleased to send the portrait to the Royal Academy Exhibition next year."

Canada will organize its own plan for securing subscriptions, being supplied with the Appeal Forms and Remittance Letter in bulk, and will issue its own covering letter, remitting to London directly.

Subscriptions may be sent to Dr. T. C. Routley, 184 College Street, Toronto.

The Fund will be closed on March 31, 1932.

## Alberta

Certain municipalities in the province are requesting the services of physicians who are in most instances expected to act as medical officers of health as well as to treat indigents without any remuneration. This burden placed by the municipality on the physician is unreasonably heavy, so much so that the Council of the College of Physicians and Surgeons of Alberta, in replying to requests for medical men, has suggested that where the municipality is willing to do its share, a physician will be available. He will do any private practice at his own risk.

There is a feeling on the part of many physicians that the Federal Department of Health should be much more careful in granting licenses to sell patent medicines than at present. A regulation could be made that any one seeking such privileges should leave a reasonable sum on deposit with the government which would be forfeited in case of violation of the Act. The Department of Health sometime ago issued a list of diseases which could not be successfully treated by proprietary medicines, but so far there has been no enforcement of this ruling.

The provincial Department of Health recently published some statistics of interest. There were in 1926, 346 deaths from violence other than suicide; in 1927, 392; in 1928, 460; in 1929, 474. The following is a list of communicable diseases in the province during the past month of June: pulmonary tuberculosis, 22 cases; erysipelas, 6; scarlet fever, 40; diphtheria, 10; measles, 21; chicken pox, 82; German measles, 3; mumps, 8.

Two post-graduate meetings were held on August 12th and 14th, at Peace River and Grande Prairie, under the auspices of the Canadian Medical Association, when Dr. A. E. Archer, F.R.C.S. (Can.), and Dr. D. B. Leitch, F.R.C.P. (Can.), each gave lectures. At each place there was a splendid attendance.

In a recent address to the members of the Council of the College of Physicians and Surgeons of Alberta, Dr. A. E. Archer, the President, made some pertinent remarks regarding conditions existing in the province having close relationships to the practice of medicine. Some of these may be cited as they are of considerable interest.

"The profession throughout the province, and particularly in the rural section, is feeling the financial depression very keenly and we are certain to be faced with requests for assistance. The present laws as they relate to indigents are inadequate and are to a large extent not operating at all. In some parts of the province they have never functioned, and in many more they have ceased to function. The Council should consider to-day carefully what recommendation they should make as to the best way of altering existing legislation or regulations. Our profession carries a heavy load of charity work at all times, but in years such as the present the burden becomes unbearable on many men.

Many schemes are being considered by districts that know only their own problems, and by farmers' organizations, and many ill-considered and impracticable resolutions are bombarding the Minister of Health and the Minister of Municipal Affairs.

It is not probable that any drastic change in the relation of the profession to the public is desired by the government at the present time, but the interests of our profession as well as the welfare of sparsely settled areas demand some improvement in conditions, and the government is in danger of having their hand forced by agitation growing out of the present unrest.

There has been a tendency in the last year to the extension principle of the employment of doctors

by the municipality on salary. It would appear that this plan is rather pushed by the departments, and is to some extent considered to be the solution of the present difficulty by the ministers concerned. This matter should be carefully considered by the Council, and if that solution is considered applicable, the best type of contract should be suggested for adoption. It would seem to many that this scheme can only be used with satisfaction in outlying districts, and if you consider that that is the only proper field you should so recommend to the government. Either this scheme must be restricted to bona fide districts in which by no other means medical aid can be supplied or else it will extend to include the major part of the province. In my opinion if we recommend that this method of providing medical aid be restricted to such areas, we should be prepared to suggest some constructive plan for better dealing with the care of indigents and the rank and file of the settlers in rural areas, as well as provide fairer remuneration for men engaged in this type of practice."

The new one hundred bed hospital erected by the Roman Catholic sisters at Lethbridge was formally opened early in September. This splendid edifice is thoroughly well equipped and no expense has been spared to make this hospital one of the most modern in the western provinces.

Dr. E. H. Cooke who has been superintendent of the Provincial Mental Hospital at Ponoka, has resigned from this position and will enter private practice on the Pacific coast. The superintendency of the Mental Hospital at Ponoka is being taken over temporarily by Dr. C. A. Barager, Commissioner of Institutions for the province.

Dr. C. P. Fitzpatrick has resigned from his position as head of the provincial mental institution at Oliver and of outside clinic work for the health department which positions he has held for the past few years. He will likely go east where he will take up further work. His resignation has necessitated the re-organization of the medical staffs in the three mental institutions at Oliver, Ponoka and Red Deer. Dr. W. J. McAllister who has been in charge of the provincial mental training school at Red Deer will take charge at Oliver, retaining for the time being certain supervisory work at Red Deer. Dr. D. L. McCullough, of Ponoka, will take immediate charge at Red Deer acting in cooperation with Dr. McAllister. A new appointment at Ponoka will be necessary to fill the vacancy created by Dr. McCullough's removal.

G. E. LEARMONTH

### British Columbia

As a result of a resolution adopted at the meeting of the Canadian Public Health Association, at Regina, in June, the Provincial Board of Health has circularized the profession of British Columbia on the subject of trachoma. Medical men are requested to report upon cases of which they have knowledge. While it is generally understood that the malady is largely restricted to the Asiatic and Indian populations, the response to this appeal will be awaited with a great deal of interest.

The extra-mural post-graduate series of lectures, arranged by the Canadian Medical Association, was conducted during the first week of September, Drs. F. H. Mackay and C. A. Birchard, of Montreal, being the lecturers. The course terminated on September 9th, in Vancouver, with a dinner.

The Provincial Board of Health has directed attention to the prevalence of the condition commonly known as "athlete's foot." The popularity of swimming at the Pacific coast, both in tanks and in the sea, is believed to have favoured the dissemination of this form of ringworm, and it may be that the enterprise of certain manufacturers in advertising alleged remedies has played a part in drawing the notice of the laity to the condition.

On August 17th the staff of the Vancouver General Hospital met at Jericho Country Club, to tender a farewell dinner to Dr. R. A. Seymour, who has for some years been assistant superintendent of the hospital. The good wishes of his associates, in his new work in Saskatoon, were suitably expressed, and he was presented with a silver service by the staff, and with a desk-set, by the nursing staff of the hospital.

The annual meeting of the British Columbia Hospital Association was held in Victoria, September 9th, 10th and 11th. Financing and health insurance were subjects of discussion, and at round table conferences, tuberculosis, records, post-mortems and discipline of doctors were considered.

Dr. A. P. Proctor, Registrar of the College of Physicians and Surgeons of British Columbia, who has been quite ill, is reported to be convalescing at his home.

Dr. C. W. Prowd, President of the Vancouver Medical Association, attended the third International Congress on Radiology, in Paris, and is at present travelling in Russia.

C. H. BASTIN

### Manitoba

On September 9th a dinner was held under the auspices of the College of Physicians and Surgeons of Manitoba at which the question of effecting closer relationships between the College of Physicians and Surgeons and the Manitoba Medical Association was discussed. A resolution was passed asking that a committee be appointed to investigate the problem.

The election of officers for the Manitoba Medical Association resulted as follows: *President*, Dr. Ross Mitchell, Winnipeg; *First Vice-President*, Dr. E. C. Barnes, Selkirk; *Second Vice-President*, Dr. G. Perry Armstrong, Portage la Prairie; *Secretary*, Dr. F. W. Jackson, Winnipeg; *Treasurer*, Dr. F. G. McGuinness, Winnipeg. *Members at large* to the executive are:—Dr. A. G. Meindl, Winnipeg, and Dr. W. J. Elliott, Brandon.

The new sanatorium in St. Vital municipality and across the Red River from the Agricultural College was formally opened on September 22nd by His Honour the Lieutenant-Governor of Manitoba. Dr. J. D. Adamson, Superintendent of the sanatorium, was in the chair and gave a brief address of the events leading up to the erection of the edifice. Other addresses were given by Archbishop Sinnott, Father Beaudrier, parish priest, Hon. Dr. E. W. Montgomery, Minister of Public Health, and Dr. J. E. Boardman, President of the staff of St. Boniface Hospital, and Sister Letellier who is to be in charge of the new institution. The main building has accommodation for 250 beds and the children's pavilion for 40 to 50 beds.

Dr. Gordon Chown has been appointed paediatrician to the Winnipeg General Hospital. ROSS MITCHELL



### New Brunswick

At Bathurst, on August 31st, an interested gathering witnessed the turning of the first sod for the new Tuberculosis Sanatorium by Sir James Dunn. Among the speakers were Rev. H. H. Boucher, representing Bishop Chaisson, and Hon. Dr. P. J. Veniot. The gathering was presided over by Dr. Gavin.

At the meeting of the Maritime Catholic Hospital Association, Sister Kenney, of Chatham, was re-elected President. The convention lasted three days and was largely attended by hospital executives and religious sisters. One of the speakers of this meeting was Dr. E. A. Petrie, of Saint John, who addressed the gathering on "Various aspects of x-ray work".

Dr. George G. Melvin, Chief Medical Health Officer of New Brunswick, will start three months' leave of absence immediately. Dr. Melvin's health has not been satisfactory for some time and it is hoped that his extended vacation will result in some betterment of his physical condition. Dr. Melvin has served the province well in his capacity as Chief Medical Officer ever since his appointment by the then Minister of Health, Dr. Roberts. Dr. Melvin's work on vital statistics has placed the province in a most satisfactory position in this respect. His devotion to detail and his literary gifts have made his reports and public health bulletins a source of accurate information as well as a delight to the reader.

Dr. Wm. Warwick, District Medical Health Officer, reports that he has just completed a diphtheria inoculation clinic on Deer Island, Campobello and Grand Manan Island. This antidiphtheria campaign, carried on by the Department of Health, has already showed results throughout the province in the lessening of the incidence of diphtheria. As a matter of fact, the amount of infectious disease in this province this year has been decidedly less than usual.

The governing body of the Victoria Hospital, Fredericton, awarded the contract for the new Nurses' Home on August 17th. The cost of the new building will be about \$50,000.

Dr. L. W. Fitzmaurice has established at Moncton another in the series of medical units sponsored by the Canadian National Railroads. This unit will provide medical examination of engine and train crews on the Atlantic Division. There is also provision made for medical supervision of all sleeping, parlor and dining car crews. Two railway cars have been fitted up as a medical clinic, complete with operating room, x-ray and other necessary appliances.

The August extra-mural tour through New Brunswick brought to us as speakers Dr. L. C. Montgomery, of Montreal, who spoke on "Various aspects of arthritis," and Dr. F. A. C. Scrimger, also of Montreal, whose subject was "The use of radium in surgery." These two gentlemen received a very flattering reception. The attendance at the meeting was average or a bit better, in spite of the counter attractions which present themselves in the summer months.

Dr. Scrimger's reports on his findings when visiting the centres where radium is used in Europe were listened to with much attention as his first hand evaluation of various methods gave to the listener a most sincere, concise and accurate view of the strength and weakness of this form of attack on cancer.

The discussion of both papers was free and apparently pleased our visitors.

Dr. Wm. F. Roberts, of Saint John, was re-elected President of the American Academy of Physical Therapy at their meeting in Montreal. Dr. Roberts reports that the meeting was most interesting and the program included many speakers well known in both Canada and the United States.

Dr. W. A. Ross, a recent graduate from Dalhousie University, is now associated in practice with Dr. W. F. Roberts in Saint John.

During the last month, Dr. Sprague, of Woodstock, celebrated another birthday and the occasion was made very happy by a complimentary dinner tended to the Doctor by his colleagues in Woodstock at which he was presented with a purse of gold.

Dr. J. S. Bentley, of Saint John, has for some time been confined to his home by a very severe illness. The reports in the meantime as to his condition are not encouraging.

A. STANLEY KIRKLAND

### Nova Scotia

Dr. Seymour G. MacKenzie, formerly of Westville, has been appointed to the medical staff of Camp Hill Hospital, Halifax.

Dr. C. M. Jones has been appointed roentgenologist to the Halifax Infirmary, and took duty on August 1st.

The new session of the medical school of Dalhousie University will open on September 8th, with all classes filled.

Dr. J. A. Doull, Professor of Hygiene at Western Reserve University, has, with his family, been spending some weeks in his native province, and has been warmly welcomed by his Bluenose friends.

Dr. R. W. M. MacKay has been appointed Acting Assistant Medical Superintendent of the Nova Scotia Hospital, Dartmouth. After graduating at Dalhousie in 1928, Dr. MacKay spent a year at the Hospital for Mental Diseases, Brandon, Manitoba, following which he had two years' internship at the Henry Ford Hospital, Detroit.

Dr. Clyde Marshall, formerly provincial psychiatrist, but now of the Faculty of Yale University, has been engaged for several weeks of his vacation period in making some special investigations for the Nova Scotia government.

Miss Margaret Martin, who for several years served as superintendent of the Payzant Memorial Hospital, Windsor, was stricken with illness while crossing from the nurses' residence to the hospital on August 23rd, and passed away within a few hours. Miss Martin was a very capable administrator and her death is sincerely mourned by all who are associated with the hospital and by a large circle of other friends.

W. H. HATTIE

### Ontario

At the last session of the Provincial Legislature an amendment was made to the Coroners Act (c. 31, s. 2), providing for the appointment of a Supervising Coroner for the Province of Ontario. On August 21st the Attorney-General announced that Dr. M. M. Crawford Chief Coroner for Toronto had been appointed Supervisor of Coroners for the province. With the announcement Col. Price made these remarks to the Press.

"It has been found in practice that in many parts of Ontario where inquests are infrequent, coroners, through lack of practice, are not very well equipped to carry out their duties. This is no fault of their own, but rather a condition. The same thing may be said about the pathologists who must conduct the post-mortems. In order to enable coroners generally to get expert advice on how they should conduct their inquests, this amendment was made. It gives the Lieutenant-Governor power to appoint a Supervising Coroner. We have many good coroners throughout the province, and they will not be affected by anything that may be done under this section.

"It is proposed, however, working through the Crown Attorneys in the various counties, to take such action as may be helpful to improve the handling of inquests and other correlating matters. It has been thought, therefore, wise to give those who have charge of inquests an opportunity to get the advice of some one who has had experience in a practical way. In carrying out this thought, Dr. M. M. Crawford, Chief Coroner of Toronto, has been asked to take on that work. This will not interfere with his duties in Toronto, as there are now a sufficient number of coroners to fill the existing vacancies, and adequately cover the Toronto district."

With the growth of the population of Toronto and the metropolitan area to nearly 1,000,000, it has been found necessary to increase the staff of the Chief Coroner. Dr. M. M. Crawford has had on his staff Dr. J. H. McConnell, Dr. G. W. Clendenan and Dr. Julian London, the latter appointed only a few weeks ago. The pathologists who act at the request of the Coroner have been W. A. Burr, E. R. Frankish, C. H. Gilmour, I. H. Erb and W. L. Robinson. On August 21st the Attorney-General announced the following further appointments:— as Associate Coroners for Toronto: Drs. Roy J. Spence, G. R. Philp, J. P. F. Williams and John Laxton Watson. Dr. G. W. Lougheed has been added to the list of pathologists.

It is recalled that the first Chief Coroner for Toronto was the late Arthur Jukes Johnson; he was followed by the late George W. Graham, who was succeeded by M. M. Crawford, who is now appointed Supervising Coroner for the province.

A London dispatch to *The Globe* of September 2nd, says that the Victoria Hospital Trust, as the result of assurance received from Hon. Dr. J. M. Robb, Minister of Health, that the Ontario Government will contribute \$300,000 toward the reconstruction of the hospital, will consider at its next meeting the construction at once of the first unit of the new hospital. The grant will be spread over a ten-year period, with annual payments of \$20,000, but it is contingent upon the city providing \$300,000 toward the cost of the hospital, and the citizens raising another \$450,000. The city some time ago had a clause inserted in the City of London bill, which gives authority to issue debentures for the purpose. So far as the \$450,000 is concerned, it is said that there will be no trouble raising this amount. The government grant is also contingent upon the city starting work on the hospital without delay to make jobs for the unemployed.

The appointment of Dr. E. P. Lewis as director of the out-patient department of the Toronto Psychiatric Hospital has been announced by Hon. Dr. J. M. Robb, Provincial Minister of Health.

Dr. Lewis is a graduate in arts of McMaster University, and in medicine of the University of Toronto (1913). He was formerly Assistant Superintendent at the Toronto General Hospital. For four years he was with No. 2 Canadian General Hospital. Following his return he spent four years on the staff of the neurological class of the D.S.C.R., and then secured a two-year fellowship in psychiatry, studying at Harvard,

Johns Hopkins and Michigan. For the past four and a half years he has been director of the mental hygiene division of the Department of Health of the City of Toronto. His appointment, now announced, has been necessary owing to the establishing of a post-graduate course at the Toronto Psychiatric. He will commence his new duties at once.

Dr. J. K. McGregor, F.R.C.S., has recently been appointed Chief-of-Staff of the Hamilton General Hospital, and also house surgeon to the Royal Connaught Hotel.

The following are the newly elected officers of the Western Ontario Academy of Medicine: *President*, Dr. H. O. Foucar; *Vice-president*, Dr. D. D. Ferguson; *Secretary*, Dr. A. J. Read; *Treasurer*, Dr. J. H. Geddes; *Executive Committee*, Dr. Geo. Hale, Dr. S. M. Fisher.

The University of Western Ontario will play her three home games of Senior Rugby on October 10th (with McGill), on October 31st (with Toronto), and on November 7th (with Queen's).

Dr. J. T. Jarrott has sold his practice in Ailsa Craig and plans to spend a year abroad in post-graduate eye, ear, nose and throat work.

The library of the Academy of Medicine, Toronto, contains 21,785 volumes. It is the largest medical library in Ontario and the second largest in Canada.

J. H. ELLIOTT

## Quebec

**Sixtieth Annual Meeting, American Public Health Association, Montreal, September 14 to 17, 1931.**—The American Public Health Association held its sixtieth Annual Meeting at Montreal, from September 14 to 17, 1931. The Local Committee, under the chairmanship of Dr. S. Boucher, Director of the Montreal Health Department, was most successful in planning a series of entertainments and inspection trips for the members and guests, over one thousand of whom registered from out of town.

The sections which make up the Association held meetings individually and conjointly. In addition, there were general and special sessions dealing with subjects of wide public health interest.

Monday, the opening day of the meeting, was marked by several events of interest. At noon, a wreath was laid on the grave of Dr. Wyatt Johnston, in appreciative memory of his contributions to public health. In the afternoon, a symposium on Mental Hygiene, held under the chairmanship of Dr. C. M. Hincks, was full of interest. The Local Committee were hosts to the Governing Council on Monday evening at dinner, after which came the First General Session, when addresses of welcome were made on behalf of the federal, provincial and municipal governments and the universities. The President of the Association, Hugh S. Cumming, M.D., Surgeon-General of the United States Public Health Service, delivered his presidential address. A dance followed during which a buffet supper was served.

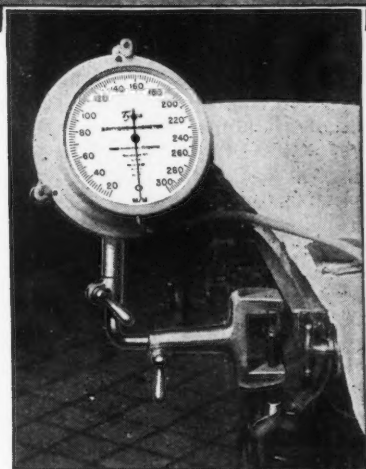
A special session devoted to Toxoid Immunization elicited several interesting papers dealing with the relative merits of toxin-antitoxin and toxoid as immunizing agents. The preference which prevails in Canada for toxoid is apparently justified.

Another special session which naturally drew a large attendance was that dealing with Public Health Administration in Great Britain. Four delegates from Great Britain were present, and they delighted their audience with a clear picture of public health work in England and the related subject of Public Assistance.

A dinner was tendered to Dr. Alice Hamilton by



**If you use  
spinal  
anesthesia**



you must have the

**Tycos SURGICAL UNIT**

As a necessary precaution during spinal anesthesia, Professor W. Wayne Babcock\* insists that an assistant should record the blood pressure every five minutes. Heeding the danger signal—a fall of blood pressure—may save the patient's life.

Out of the way of the surgeon and his assistants, yet in plain view of all, the large dial of the Office-Type Tycos may be adjusted to an infinite variety of positions by means of the universal bracket, which can be attached to any make of operating table or anesthesia machine.

\*A Text-book of Surgery, 1929, p. 574.

**Taylor Instrument Companies**

**OF CANADA LIMITED**

**TYCOS BUILDING - - TORONTO 2**

## ▲ "IN THE BEGINNING"

Careful buying and scientific analysis of every lot of crude material, ensures that only the finest ingredients are used in the production of Acetophen Tablets.

Similar high standards are maintained through every stage of manufacture to produce a tablet in which Canadian physicians have learned to have the utmost confidence.



The "Frosst Control" system commences with the analysis of crude material on its arrival and continues through each manufacturing process.

**SPECIFY**  
**ACETOPHEN**  
**COMPOUND TABLETS BY NUMBER**

Many formulae for various indications.

Your request will promptly bring a vest-pocket list.

**Charles E. Frosst & Co.**  
MONTREAL

her associates as a recognition of her work in Industrial Hygiene. Many breakfasts and luncheon meetings were arranged, and a luncheon was held in honour of the British delegates. A joint dinner, which was particularly successful, was that of the Health Officers and Child Hygiene Sections with the American Association of School Physicians and the International Society of Medical Health Officers, which latter organizations were holding their annual meetings at the time of the convention. At this dinner, Dr. John T. Phair gave a delightful address on behalf of the school physicians.

Wednesday afternoon was fortunately bright, clear and cool for the Garden Party on Mount Royal. The weather was a pleasant change from the oppressive heat of the previous days; the view from the mountain was perfect, and the music of the Grenadier Guards' Band was greatly enjoyed.

The problem of public health organization in rural areas was fully discussed at a special session. The experience of the Province of Quebec in establishing County Health Units was clearly and interestingly described by Dr. Alphonse Lessard, Director of the Quebec Provincial Bureau of Health.

Thursday evening brought the meeting to a close with the Annual Banquet, at which the Honourable Athanase David, Secretary of the Province of Quebec, spoke with his customary eloquence on "The duty of the state in the matter of health."

Over two hundred delegates took the post-convention tour to Quebec City and the Saguenay River, visiting en route the Government Quarantine Station at Grosse Ile.

During the first week in September the American Academy of Physical Therapy met in the Mount Royal Hotel, Montreal. Papers were read by, among others, Drs. Leo Pariseau, Montreal; George A. Wyeth, New York; Douglas Quick, New York; Arthur L. Brown, Winchester, Mass.; F. H. Krusen, Philadelphia, and one was read on behalf of Prof. L. Gunzberg, of Antwerp, who was not present, on "Lesions of the shoulder joint." Dr. Pariseau's paper, delivered in his usual breezy style, dealt with "Diathermy," and was illustrated by a wealth of apparatus.

A plea for greater attention in schools of medicine to physical therapy was made by Frank Hammon Krusen, M.D., associate dean, Temple University School of Medicine, Philadelphia, in his address. He urged that the pre-medical schools, graduate and undergraduate medical schools, teaching hospitals, nurses' training schools and medical organizations should make every effort to develop a rational understanding of treatment by physical agents. Very rapid strides had been made in this subject since the world war, but the medical world was still far from a thorough knowledge of the advantage of physical therapeutics. There was need for more careful research work concerning the exact action of each physical agent, and for more painstaking investigation. The various research laboratories should be called in to help in such research.

A questionnaire sent to 77 schools in the United States and nine in Canada, elicited replies from 44 schools, of which only 13 reported that they gave more or less complete courses in physical therapy.

Dr. William F. Roberts of Saint John, N.B., former Minister of Health in the New Brunswick Government, was chosen President.

Other officers elected were: Grant E. Ward, M.D., Baltimore, Md., *First Vice-president*; Vernon C. Stewart, M.D., Woburn, Mass., *Second Vice-president*; Thomas L. Smyth, M.D., Allentown, Pa., *Secretary-Treasurer*; Isaac M. Gravlee, M.D., Fairfield, Ala.; William D. McFee, M.D., Boston, Mass., and Harold D. Corbusier, M.D., Plainfield, N.J., *Directors for three years*; William L. Clark, M.D., Philadelphia, Pa., and Harry C. Westervelt, M.D., Pittsburgh, Pa., *Directors for two years*; A. H.

Ring, M.D., Arlington Heights, Mass., and Byron S. Price, M.D., New York, *Directors for one year*.

The Province of Quebec returned the lowest figure ever known for any one month in infantile mortality during June, according to vital statistics for that month issued by the Provincial Hygiene office. The general rate of 79.1, made up of 233 deaths as against 2,908 births is the lowest ever recorded for any one month since vital statistics were maintained by the province, in 1926.

In all there were 233 cases of infantile mortality during the month, this being about one-fifth of the total number of deaths of all kinds, which were 1,236. The province's general death rate was 11.3, with Levis registering the highest rate in this category, there being 22 deaths in the city during June.

Births still largely outnumber deaths in the Province of Quebec, for during June there were 2,908 births as against 1,236 deaths.

Deaths from contagious diseases and specified causes during the month of June were: typhoid, 11; measles, 8; scarlet fever, 13; whooping cough, 14; diphtheria, 19; influenza, 30; poliomyelitis, 1; tuberculosis of the respiratory system, 200; other forms of tuberculosis, 63; syphilis, 11; cancer, 197; diabetes, 31; heart disease, 283; pneumonia, 136; diarrhoea, 119; nephritis, 149; puerperal state, 32; violence, 127, and traffic, 50.

Montreal supplied 34 of the violent deaths during the month, and 19 of the deaths ascribed to traffic.

## United States

**The Fourth Annual Graduate Fortnight of The New York Academy of Medicine** will be held from October 19 to 30, 1931, on the general subject, "Disorders of the circulation." The program comprises specially arranged coordinated afternoon clinics bearing upon the general subject of the Fortnight which will be presented in twelve of the large hospitals of the city; evening sessions at which well-known authorities will discuss the general subject from many viewpoints; a scientific exhibit of anatomical, bacteriological and pathological specimens; and research material bearing upon the various aspects of the subjects discussed at the evening meetings.

Applications may be made in person at the Registration Bureau of the New York Academy of Medicine, 2 East 103rd Street, New York, failing presentation of the Registration Blank previously.

**The American College of Physicians.**—The American College of Physicians will hold its Sixteenth Annual Clinical Session at San Francisco with headquarters at the Palace Hotel, April 4 to 8, 1932. Following the clinical session, a large percentage of the attendants will proceed to Los Angeles where a program principally of entertainment will be furnished April 9, 10 and 11.

Announcement of the dates early is made particularly with a view not only of apprising physicians generally of the meeting but also to prevent conflicting dates with other societies that are now arranging their 1932 meetings.

Dr. S. Marx White, of Minneapolis, is President of the American College of Physicians, and will arrange the program of general sessions. Dr. William J. Kerr, Professor of Medicine at the University of California Medical School, San Francisco, is general chairman of local arrangements, and will be in charge of the program of clinics. Dr. Francis M. Pottenger, of Monrovia, is President-elect of the College, and will be in charge of the arrangements at Los Angeles. Mr. E. R. Loveland, Executive Secretary, 133-135 S. 36th Street, Philadelphia, Pa., is in charge of general





## *Ayerst* ACTIVATED COD LIVER OIL—10D (VIOSTEROL COD LIVER OIL)

This is a Newfoundland Cod Liver Oil of the highest known Vitamin A potency, to which has been added Irradiated Ergosterol to increase the number of rat units of Vitamin D to ten times that of its natural content.

In conditions where it may be desirable to support the specific action of Vitamin D with the anti-infective and growth-promoting properties of Vitamin A, *AYERST*, ACTIVATED COD LIVER OIL—10D (Viosterol Cod Liver Oil) will supply the full requirement.

The high vitamin content is even young babies. The protected from deterioration usual dose for infants and by a special carbonating process which imparts a surprisingly fine, wholesome flavour and enhances its quality of being easily digested by young children and adults,  $\frac{1}{2}$  to 1 teaspoonful three or four times daily.



In 4 ounce and 16 ounce bottles

A Canadian Product by  
**Ayerst, McKenna & Harrison**  
 Limited  
 Pharmaceutical Chemists  
 MONTREAL TORONTO



and business arrangements, and may be addressed concerning any feature of the forthcoming session.

**California Forms a Cancer Commission.**—The California Medical Association has recently formed a permanent Cancer Commission to actively attack the cancer problem in that state. The Commission plans to review and bring to the attention of the medical profession the most modern methods of diagnosis and treatment of cancer, to educate the lay public, to encourage the establishment of well equipped clinics and hospitals, and to further laboratory research in the cancer field. Dr. Charles Dukes of Oakland is Chairman, Dr. Lyell C. Kinney of San Diego is vice-chairman and Dr. A. R. Kilgore of San Francisco is secretary of the Commission. Dr. Kilgore is also chairman of the Society for northern California.

**Classification of Goitre.**—The American Association for the Study of Goitre has given its approval to the following classification and policy in nomenclature.

Clinical classification: Type 1—non-toxic diffuse goitre; Type 2—toxic diffuse goitre; Type 3—non-toxic nodular goitre; Type 4—toxic nodular goitre.

Nomenclature: The association advocates a policy of using the simplest and yet the most descriptive terminology possible.

The use of proper names, while it is impossible to dispense with many of the well-established ones, should be discouraged, as should coined words, invented to popularize a fad or fancy.

Emphasis should be laid upon the importance of not confounding varieties and sequelæ with types. The use of such terms as exophthalmic, hæmorrhagic, cystic, adolescent, colloid, intra-thoracic, substernal, and congenital is perfectly proper when used to describe varieties, but only constant characteristics should be used to designate types.

**Hobart A. Hare, M.D., LL.D.**, Professor of Therapeutics, Materia Medica, and Diagnosis, Jefferson Medical College, Philadelphia, died June 16th at Jefferson Hospital after a long illness, aged 68 years. Since 1891 he has held the above mentioned professorship and has long been regarded as an authority and teacher in his particular field. He was a Fellow of the College of Physicians of Philadelphia since 1889 and a president of that body from 1925 to 1927, three terms. His works on Therapeutics were for years standard text-books.

### General

**The Prize Awards of the Canadian Tuberculosis Association.**—Announcement has been made of the annual awards of the Canadian Tuberculosis Association for the best thesis on a clinical subject and the best thesis on a laboratory subject. These must be written by doctors resident in Canadian Sanatoria less than five years, and about work or studies they themselves have carried out.

The award for laboratory work was assigned to Dr. W. S. Stanbury, Calydon Sanatorium, for his monograph "The rapid estimation of the gold excretion of patients under sanocrysin treatment." The prize is \$250.

The selection of a winner from the two best theses presented on a non-laboratory subject proved so difficult that it was felt their quality was too near a parity for one to be set aside entirely in favour of the other. The Committee is recommending \$150 to be given to Dr. W. S. Barclay, Saskatoon Sanatorium, for his contribution under the title: "A study of tuberculosis contacts in families". An award of \$100 is recommended to be paid to Dr. L. G. Montgomery for his contribution under the title of: "A study of tuberculosis in Indian children."

**The National Tuberculosis Association (U.S.A.)** which met last year in Syracuse, and meets next year in Denver, has decided to hold its 1933 meeting in Toronto. This will be the first time the Association has met outside the United States of America.

**University of Paris: Practical Course in Dermatology.**—This course will be given at the Hôpital Saint-Louis, from January 19 to 30, 1932, under the direction of Associate Professor Sezary, with the collaborations of Mm. Sabourand, Belot, Schulmann, Lefevre, Ducourtieux, Levy, Gallerand, Cornbe, and Levy-Coblentz.

Lectures will be given on the different therapeutic measures advisable in the case of diseases of the skin, as well as practical instruction in minor surgical procedures and the use of physical agents, electro-coagulation, electrolysis, galvano-cauterization, cryo-cauterization, ultra-violet light, etc. The fee for the course is 400 francs.

A certificate of attendance will be granted at the end of the course to those who have qualified. All information can be obtained from Associate Professor Sezary, Hôpital Saint-Louis, 40 Rue Bichat, Paris.

On July 18th the honorary degree of Doctor of Medicine was conferred on Dr. Harvey Cushing by the Budapest Royal Hungarian Peter Pázmány University.

Dr. R. Tait McKenzie, (McGill, Arts '89, Med. '92, LL.D. '21), who retired from the post of Director of Physical Education at the University of Pennsylvania this spring, has been appointed Research Professor of Physical Education, an appointment that will permit him more opportunity to engage in the sculpture that has won him world-wide renown, at the same time preserving for the University of Pennsylvania the benefit of his counsel and the prestige of his name. Dr. McKenzie visited Ottawa this summer, to work in the Parliament Buildings on a marble memorial to the 60th anniversary of Confederation, presented by Canadians resident in the United States.

### Book Reviews

**Hypertension and Nephritis.** Arthur M. Fishberg, M.D., Associate Physician to Beth Israel Hospital, etc. Second edition. 620 pages, illustrated. Price \$6.50. Lea & Febiger, Philadelphia, 1931.

This is a new edition of a work which had a very favourable reception. With revision of some sections and rewriting of others some fifty pages have been added. Dealing fully with function, both normal and altered, with anatomy, pathology, symptoms and treatment, it is essentially a clinical work for the general practitioner. In clinical diagnosis and the general treatment of cases the simpler methods of clinical investigation are used as general guides, yet the value of some of the more involved laboratory procedures is not overlooked. Though the author writes from his own experience, he quotes extensively from other writers and appends to each chapter a full bibliography of the sources to which he makes reference, guiding the reader to original articles if following up particular phases of the subject under discussion. Such subjects as oedema, uræmia and albuminuria are treated in individual chapters, and these include treatment. The nephroses and various forms of nephritis are of course treated at length, as is essential hypertension. Treatment is dealt with fully—general management, diet, exercise, drugs, non-drug therapy, and the treatment of symptoms and complications. We can highly recommend this work as a general guide book and valuable work of reference.



## Royal College of Physicians and Surgeons of Canada

### Examinations for Fellowship

The Professional Examinations, both Primary and Final, for the Diploma of Fellow will be held in Montreal and Edmonton between the 28th of September and the 6th of October 1931.

The examinations, written and oral, will be held by two or more examiners in each subject.

A candidate for the *Primary Examination* must deliver to the Registrar-Secretary of the College a properly filled in application accompanied by a certificate of having passed the required examinations of a Medical College approved by Council, in:

1. Anatomy—including Histology and Embryology.
2. Physiology—including Biochemistry.

A candidate for the *Final Examination* must have passed a Primary Examination\* and must deliver to the Registrar-Secretary of the College a properly filled in application form which includes:

1. A certificate of graduation from a Medical College approved by Council.
2. A certificate of licensure in one Province of Canada.
3. A certificate of having spent one year, at least, on the medical or surgical staff of a hospital approved by Council.

The fees are \$50.00 for the Primary Examination; \$100.00 for the Final Examination; and \$100.00 for the Diploma of Fellowship.

All inquiries and communications should be addressed to:

**The Registrar-Secretary**  
**Royal College of Physicians and Surgeons of Canada**  
 184 College Street, Toronto 2.

\*The Primary Examination of the Royal College of Surgeons (England) will be accepted.

## INTERNATIONAL MEDICAL ASSEMBLY

### INTER-STATE POSTGRADUATE MEDICAL ASSOCIATION OF NORTH AMERICA

MILWAUKEE AUDITORIUM  
 Milwaukee, Wisconsin

OCTOBER 19-20-21-22-23, 1931



**OFFICERS OF THE ASSOCIATION**  
 President, **Dr. Henry A. Christian**, Boston, Mass.  
 President-Elect, **Dr. Arthur Dean Bevan**, Chicago, Ill.  
 Presidents **Dr. William J. Mayo**, Rochester, Minn.  
 of Clinics **Dr. Charles H. Mayo**, Rochester, Minn.  
 Managing-Director, **Dr. William B. Peck**, Freeport, Ill.  
 Executive Secretary and Director of Exhibits,  
**Dr. Edwin Henes, Jr.**, 759 N. Milwaukee St.,  
 Milwaukee, Wis.  
 Treasurer and Director of Foundation Fund,  
**Dr. Henry G. Langworthy**, Dubuque, Iowa.  
 Speaker of the Assembly,  
**Dr. George V. I. Brown**, Milwaukee, Wis.  
 Chairman, Program Committee,  
**Dr. George W. Crile**, Cleveland, Ohio.

ALL MEDICAL MEN AND WOMEN IN GOOD STANDING CORDIALLY INVITED

Intensive Clinical and Didactic Program by World Authorities from CANADA, ENGLAND, FRANCE, IRELAND AND UNITED STATES

A. LAWRENCE ABEL, London, Eng.  
 IRVIN ABELL, Louisville, Ky.  
 ISAAC A. ABT, Chicago, Ill.  
 H. BERGLUND, Minneapolis, Minn.  
 A. D. BEVAN, Chicago, Ill.  
 P. B. BLAND, Philadelphia, Pa.  
 M. A. BLANKENHORN, Cleveland, O.  
 F. K. BOLAND, Atlanta, Ga.  
 HARLOW BROOKS, New York, N.Y.  
 A. G. BROWN, Toronto, Ont., Can.  
 C. S. BURWELL, Nashville, Tenn.  
 R. LAF. CECIL, New York, N.Y.  
 HENRY A. CHRISTIAN, Boston, Mass.  
 WM. THOMAS COUGHLIN, St. Louis, Mo.  
 GEO. W. CRILE, Cleveland, O.  
 S. J. CROWE, Baltimore, Md.  
 HUGH S. CUMMING, Washington, D.C.  
 J. B. DEEVER, Philadelphia, Pa.  
 ROBT. S. DINSMORE, Cleveland, O.  
 C. F. DIXON, Rochester, Minn.  
 E. M. EBERTS, Montreal, Que., Can.

C. A. ELLIOTT, Chicago, Ill.  
 JOHN F. ERDMANN, New York, N.Y.  
 J. M. T. FINNEY, Baltimore, Md.  
 CHAS. H. FRAZIER, Philadelphia, Pa.  
 R. L. HADEN, Cleveland, O.  
 WM. D. HAGGARD, Nashville, Tenn.  
 S. F. HAINES, Rochester, Minn.  
 LOUIS HAMMAN, Baltimore, Md.  
 S. W. HARRINGTON, Rochester, Minn.  
 C. A. HEDBLUM, Chicago, Ill.  
 H. F. HELMHOLZ, Rochester, Minn.  
 M. S. HENDERSON, Rochester, Minn.  
 CHAS. C. HIGGINS, Cleveland, O.  
 SIR THOS. J. HORDER, Bt. London, Eng.  
 C. P. HOWARD, Montreal, Que., Can.  
 H. O. JONES, Chicago, Ill.  
 E. P. JOSLIN, Boston, Mass.  
 E. STARR JUDD, Rochester, Minn.  
 L. J. KARNOSH, Cleveland, O.  
 B. R. KIRKLIN, Rochester, Minn.  
 H. L. KRETSCHMER, Chicago, Ill.  
 F. H. LAHEY, Boston, Mass.

B. J. LEE, New York, N.Y.  
 D. D. LEWIS, Baltimore, Md.  
 F. O. LEWIS, Philadelphia, Pa.  
 WM. E. LOWER, Cleveland, O.  
 J. S. LUNDY, Rochester, Minn.  
 W. F. MANGES, Philadelphia, Pa.  
 W. M. MARRIOTT, St. Louis, Mo.  
 THIERRY DE MARTEL, Paris, France  
 J. M. MARTIN, Dallas, Texas  
 C. H. MAYO, Rochester, Minn.  
 W. J. MAYO, Rochester, Minn.  
 W. S. McCANN, Rochester, N.Y.  
 J. F. McCARTHY, New York, N.Y.  
 E. P. McCULLAGH, Cleveland, O.  
 A. A. McCONNELL, Dublin, Ireland  
 J. S. McLESTER, Birmingham, Ala.  
 J. H. MEANS, Boston, Mass.  
 W. S. MIDDLETON, Madison, Wis.  
 W. G. MORGAN, Washington, D.C.  
 W. V. MULLIN, Cleveland, O.  
 J. H. MUSSER, New Orleans, La.  
 G. B. NEW, Rochester, Minn.

B. H. NICHOLS, Cleveland, O.  
 P. A. O'LEARY, Rochester, Minn.  
 E. W. A. OCHSNER, New Orleans, La.  
 T. G. ORR, Kansas City, Mo.  
 R. B. OSGOOD, Boston, Mass.  
 J. E. PAULLIN, JR., Atlanta, Ga.  
 D. B. PHEMISTER, Chicago, Ill.  
 F. W. RANKIN, Rochester, Minn.  
 L. G. ROWNTREE, Rochester, Minn.  
 R. D. RUDOLF, Toronto, Ont., Can.  
 E. W. RYERSON, Chicago, Ill.  
 O. H. SCHWARZ, St. Louis, Mo.  
 E. S. SMITH, St. Louis, Mo.  
 F. N. G. STARR, Toronto, Ont., Can.  
 ARTHUR STEINDLER, Iowa City, Iowa  
 C. C. STURGIS, Ann Arbor, Mich.  
 C. G. TOLAND, Los Angeles, Calif.  
 W. T. VAUGHAN, Richmond, Va.  
 W. WALTERS, Rochester, Minn.  
 J. M. WHEELER, New York, N.Y.  
 S. MARX WHITE, Minneapolis, Minn.  
 W. A. WHITE, Washington, D.C.

HOTEL HEADQUARTERS  
 HOTEL SCHROEDER

—HOTEL RESERVATIONS—

HOTEL COMMITTEE, DR. ROLAND S. CRON, CHAIRMAN,  
 740 NO. SECOND ST., MILWAUKEE, WIS.

FINAL PROGRAM TO BE MAILED TO ALL MEMBERS OF AMERICAN AND CANADIAN MEDICAL ASSOCIATIONS (LOOK FOR IT).

Comprehensive Scientific and Technical Exhibit. Special Entertainment for the ladies.

REDUCED RAILROAD RATES FROM ALL PARTS OF THE UNITED STATES AND CANADA

**30**  
 CLINICS

ALL SPECIALTIES INCLUDED IN PROGRAM  
 Dermatology — Medicine — Regional Anesthesia — Oto-Rhino-Laryngology — Obstetrics  
 and Gynecology — Urology — Radiology and Roentgenology — Therapeutics — Neurology  
 and Psychiatry — Ophthalmology — Pediatrics — Surgery — Orthopedic Surgery.

**80**  
 ADDRESSES

**Accidental Injuries. The Medico-legal Aspects of Workmen's Compensation and Public Liability.**

Henry H. Kessler, A.B., M.D., F.A.C.S., F.A.P.H.A., Medical Director, New Jersey Rehabilitation Clinic, etc. 718 pages, illustrated. Price \$10.00. Lea & Febiger, Philadelphia, 1931.

This new volume is an important contribution to the medical literature pertaining to Workmen's Compensation, and the correlated subjects of medico-legal medicine, and rehabilitation of the permanently disabled. The author has had the valuable experience of several years' work as Chief Medical Officer to the Workmen's Compensation Bureau in New Jersey, in addition to an extensive training in the orthopaedic field of surgery; two lines of work that have given him the required background of medical culture and training, and enable him to present his subject with precision and sound medical judgment. On the whole the reader is not disappointed. His discussion of the legal aspects of workmen's compensation statutes is in the main of only academic interest to Canadian and British readers, being concerned almost solely with the chaotic lack of uniformity in the statutes of the various states in the Union. Many pages are wasted in discussion of impracticable and futile matters. Pages are given to classifications of general causes of accidents and the manner of occurrence of accidents; things which are as numerous as the stars in the heavens.

The commendable features of his work, however, much outweigh the sections devoted to matters of minor import. The author lays much emphasis on the problem of securing rational and honest ratings of permanent disabilities. Many comparative tables of ratings are given, and he attempts to furnish some reasonable methods of analyzing the various forms of partial disabilities which medical men are so frequently required to assess. Medical men and surgeons need not feel affronted if the statement is made that their professional education has been sadly neglected in this respect, and that a pressing need exists for their fuller enlightenment on this particular subject. Dr. Kessler's volume is valuable in giving light on this very live, but overlooked, branch of medical knowledge.

The important part of the book is the section devoted to discussion of injury as a cause of subsequent conditions of disease. Largely as a result of compensation insurance legislation, it is found that the subjects of injury, frequently seriously backed up by their medical attendants, are only too prone to assert and strenuously claim that any form of subsequent disease arising must have been caused, or at least accelerated in onset, by some previous injury. Dr. Kessler preserves a mildly sceptical attitude towards such claims and asks "to be shown". He lays down many useful postulates for the various forms of disease which he requires to be satisfied before his acceptance of the claim can be secured.

The author's style is clear and pleasing. The references to the literature on the subject are copious and very useful. The book carries a large number of illustrations though it is not clear why space should be taken up in this way in a book of this character.

We recommend this volume to the practising surgeon and medical man.

**Posture, Its Relation to Health.** Frank D. Dickson, M.D., Orthopaedic Surgeon, Saint Luke's Hospital and Kansas City General Hospital. 212 pages, illustrated. Price \$5.00. Philadelphia, London and Montreal, J. B. Lippincott, 1931.

The advent of Dr. Dickson's book on posture is timely indeed, and the profession will now have a guide in this important subject. Despite the importance that we think this subject deserves, it has been very much neglected in the past, although considerable interest has been manifested and much work

has been done on the subject in the last decade or more on the part of the American orthopaedists, notably those of Boston. The leaders in this work were Joel E. Goldthwaite and Armin Klein. Odd it seems that these men have not brought the subject to the attention of the profession in the form of a more or less exhaustive study. It has been left to Doctor Dickson to be the first in the field in this regard and the thanks of the profession should be his.

The book treats the subject from the orthopaedic point of view, and rightly so, as it comes more particularly in their field, but we would like to take the opportunity of pointing out the extreme importance of recognition on the part of the general practitioner and the paediatrist, as they are the first to see the incipency, and they have the best opening for instituting means of correction before the case is advanced sufficiently to be put in the hands of the orthopaedist. Again, if they appreciate the subject, they, almost alone, have the golden opportunity of doing much in the way of prevention.

The only criticism that may be directed towards Doctor Dickson's book is that the importance of prevention has not been stressed, although this, practically, as intimated before, comes into the hands of the general practitioner and paediatrist. Also, he has not brought out the facts that faulty posture may have its commencement immediately after birth, in the sagged mattress, improper support when carrying the infant, and incorrect sleeping positions, and that it is very prevalent in the pre-school child. In short, he has presented the subject as an already established condition and has not stressed the significance and value of preventive work in the making of better shaped and more efficient mortals to be.

**Differentialdiagnostik in der Pädiatria. (Differential Diagnosis in Paediatrics).** Volume 7. Dr. Med. Walter Pflüger, Facharzt für Kinderkrankheiten in Stuttgart. 160 pages. Price \$2.60. Published by Theodor Steinkopff, Dresden and Leipzig, 1931.

This small volume forms the seventh and last of a series on practical differential diagnosis, edited by the late Professor Georg Honigmann, of Giessen. It is, in its way, somewhat similar to French's Index of Differential Diagnosis, which is well known in this country. The book is well and compactly written. It gives a long enumeration of symptoms, and discusses the differential points in diagnosis which each symptom suggests. It should prove of inestimable value both to general practitioners and paediatricians, for, with a given group of symptoms, one can obtain at a glance a bird's eye view of practically all the conditions associated with these symptoms, as well as a short discussion of particular features of each disease in the differential group. So far as the knowledge of this reviewer goes, such a book as this, dealing as it does with paediatric diagnosis only, does not exist in the English language. To anyone, therefore, with even a very moderate knowledge of German, this volume will be of considerable aid. The language is simple, and the matter very much to the point at all times. There is no "padding". The entire field of paediatrics is adequately covered. The book is not intended as a text-book, but rather as one of reference, and in this capacity it might well find a place on the bookshelves of all physicians whose work brings them into contact with children.

**Functional Disorders of Gastrointestinal Tract.** Wm. Gerry Morgan, M.D., F.A.C.P., Professor of Gastroenterology, Georgetown University Medical School, etc. 260 pages, illustrated. Price \$5.00. Philadelphia, London and Montreal, J. B. Lippincott, 1931.

In his preface the author states that in the preparation of this book he has drawn chiefly on records of his personal experience, particularly in regard to



# SERUM TREATMENT *of Pneumonia*

UNTIL RECENTLY the use of an unconcentrated serum for Type I infections represented the only serum treatment for pneumonia which had gained general recognition. While this serum did not affect Type II, Type III or Group IV cases, it proved to be a very effective therapeutic agent in Type I cases in which it was used intravenously in large doses.

The obvious difficulties attendant upon the use of large doses of unconcentrated anti-pneumococcus serum have been greatly reduced, Felton and others having succeeded in evolving not only an effective highly concentrated Type I serum but also a corresponding Type II serum. This achievement is of very real significance, since Type I or Type II pneumococci are the causative agents in over fifty per cent of all cases of lobar pneumonia.

Promising results have been obtained from the intravenous use of concentrated anti-pneumococcus sera prepared in the Connaught Laboratories, and supplies of these sera are now being made available in four containers as follows:

5 cc. & 10 cc. Concentrated Anti-Pneumococcus Serum (Type I)

5 cc. & 10 cc. Concentrated Anti-Pneumococcus Serum (Type II)

Should there be occasion to administer serum prior to receipt of a report of the typing of a case, a physician may mix these sera.

*( Prices and information regarding the use of  
Type I and Type II concentrated Anti-Pneumo-  
coccus Sera will be gladly supplied upon request. )*

CONNAUGHT LABORATORIES  
University of Toronto

TORONTO 5

CANADA

treatment. The cases presented are discussed under two main groupings, those in which symptoms are brought about through imaginary causes and those in which functional disturbances are based on disordered mechanism or pathological disturbances of a minor character.

Under each heading there is a brief discussion of etiology, symptoms, diagnosis and treatment followed by a number of case histories illustrative of the condition. The text is readable and the material clearly and well presented, the illustrations being particularly good. An objectionable feature of the work is, that in dealing with diet lists, the author has mentioned specific brands of biscuits, cocoa, etc. While these brands may have in the author's experience proved very satisfactory, one feels that advertising of this nature is best omitted from ethical medical publications.

**Proctoscopic Examination and the Treatment of Hemorrhoids and Anal Pruritus.** Louis A. Buie, B.A., M.D., F.A.C.S., Section of Proctology, Mayo Clinic, Rochester, Minn., etc. 178 pages, illustrations. Price \$4.00. Philadelphia and London: W. B. Saunders; Toronto: McInsh & Co., 1931.

This little book deals with conditions which are still largely within the field of the general practitioner. The author gives a clear description of the technique of proctoscopic examination and appropriately emphasizes its importance as a preliminary to the treatment of hemorrhoids. The technique of the injection treatment and of hemorrhoidectomy are both fully elucidated by good illustrations. Alcohol injection in the treatment of anal pruritus has given the author 84 per cent of cures. The book can be highly recommended as a safe guide to all who undertake the treatment of the maladies discussed.

**Practical Physiological Chemistry.** P. B. Hawk, M.S., Ph.D., President Food Research Laboratories, New York, and O. Bergeim, M.S., Ph.D., Assistant Professor of Physiological Chemistry in University of Illinois, College of Medicine, Chicago. 10th edition. 929 pages, illustrated. Price \$6.50. P. Blakiston's Son & Co., Philadelphia, 1931.

The tenth edition of this well-known book, appearing just twenty-five years after the first, is sure of its welcome. Unlike almost all other laboratory manuals of biochemistry, it is not merely a guide to the junior student, but an invaluable reference book for all interested in this field. It gives, wherever desirable, not merely one selected method for any given determination but several of the most popular and important of them. For example, five methods for blood sugar determination, and several modifications, are described. Furthermore, it is not a mere "cookery book" but gives succinct summaries of the interpretation of laboratory findings; and of the chemical and physical principles on which analytical technique is based, and includes descriptions of many experiments from which students may learn important principles. The irritating "What happens, and why?", so prevalent in similar books, is here largely replaced by definite, informative statement. This edition has been rearranged and largely rewritten, with the incorporation of much new material. Thus the chapter on blood analysis, perhaps the most used part of the book, includes the Folin and the Leiboff methods for blood urea, the Folin and the Benedict (1931) micro-methods for glucose, Youngburg's system of phosphorus determination, Breh and Gaebler's method for potassium, and Turner's for iodine, all of which have been introduced within the past two years. The sections on digestive enzymes and on vitamins have been enlarged and greatly improved, and all chapters have been brought up to date. The chapter on the endocrine organs, though much revised, appears to lag behind; one would have expected to find methods for the assay of oestrin, for example, and an account of the Asheim-Zondek test for pregnancy. Windaus's discarded cholesterol formula,

which has been passed from text-book to text-book for years, makes another and, let us hope, a final appearance; an error has crept in in the formula of thioneine. But on the whole, the book appears to be extremely accurate, considering how laborious proof-correcting must be in the case of a large book crammed with figures and tables. The illustrations are numerous and good, and there is an excellent index.

**Guide to Current Official Statistics of the United Kingdom,** Volume nine, 1930, prepared by the Permanent Consultative Committee on Official Statistics, published by His Majesty's Stationery Office, and obtainable from the Imperial News Company, Limited, 975 St. Antoine St., Montreal.

This volume, the ninth of the series, is a guide to the statistical information contained in the numerous official publications of Great Britain and Ireland for the year 1930. The guide is much more than a mere list. The index is alphabetically arranged and gives headings which show the degree of detail with which the statistics are presented and the page number of the publication in which they are to be found. Physicians, health officers and all others who make use of official statistics will welcome this volume as a time-saving aid which will ensure that statistics of value will not be overlooked.

**FOR SALE**—Refrigerating plant complete (Linde) Ammonia Compressor, Brine Tanks, also 3 Walk-in Boxes. Apply Saint John Tuberculosis Hospital, East Saint John, N.B.

**FOR SALE.**—\$8,500.00—Toronto practice and home. Illness has caused the sale of twenty year practice of over \$10,000. per year. Eleven rooms, garage, two roomed doctor's suite with separate entrance from street. Please write or telephone W. Bickle, 307 Indian Road, Toronto, Lloydbrook 4823. A splendid opportunity for general practitioner.

**FOR SALE OR LEASE.**—Doctor's residence and office for the past 22 years. Apply 52 Main Street West, Hamilton, Ont.

**FOR SALE.**—Medical practice. Vacancy in south-western Manitoba town; pleasant residence; good district; wide-awake town; on Hydro line. Present circumstances admittedly dry, but prospects excellent. Bungalow, with recently installed water-works, \$3,000.00. Office furniture, including x-ray bedside unit and all fittings \$1,000.00. Part of payment may be deferred. Apply: Alfred B. Estlin, Melita, Manitoba.

**WANTED**—Interne for well established general hospital of 300 beds. Internship lasting one year. Salary, \$50.00 per month besides room and board. Apply Box 162, C.M.A.J., 3640 University Street, Montreal.

**WANTED**—M.D., L.M.C.C., age 30, single, Protestant, 2 years' internship, one year general practice, post-graduate in obstetrics, Glasgow, desires surgical assistantship with a doctor wishing to be relieved of midwifery. Excellent references. Apply Box 163, C.M.A.J., 3640 University St., Montreal.

